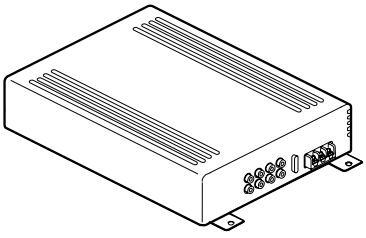
Service Manual

DEQ-P9/UC



ORDER NO.
CRT2686

UNIVERSAL DIGITAL PREAMP EQUALIZER

DEQ-P9

UC,EW

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K-ZZA. MAY 2001 Printed in Japan

1. SAFETY INFORMATION

CAUTION

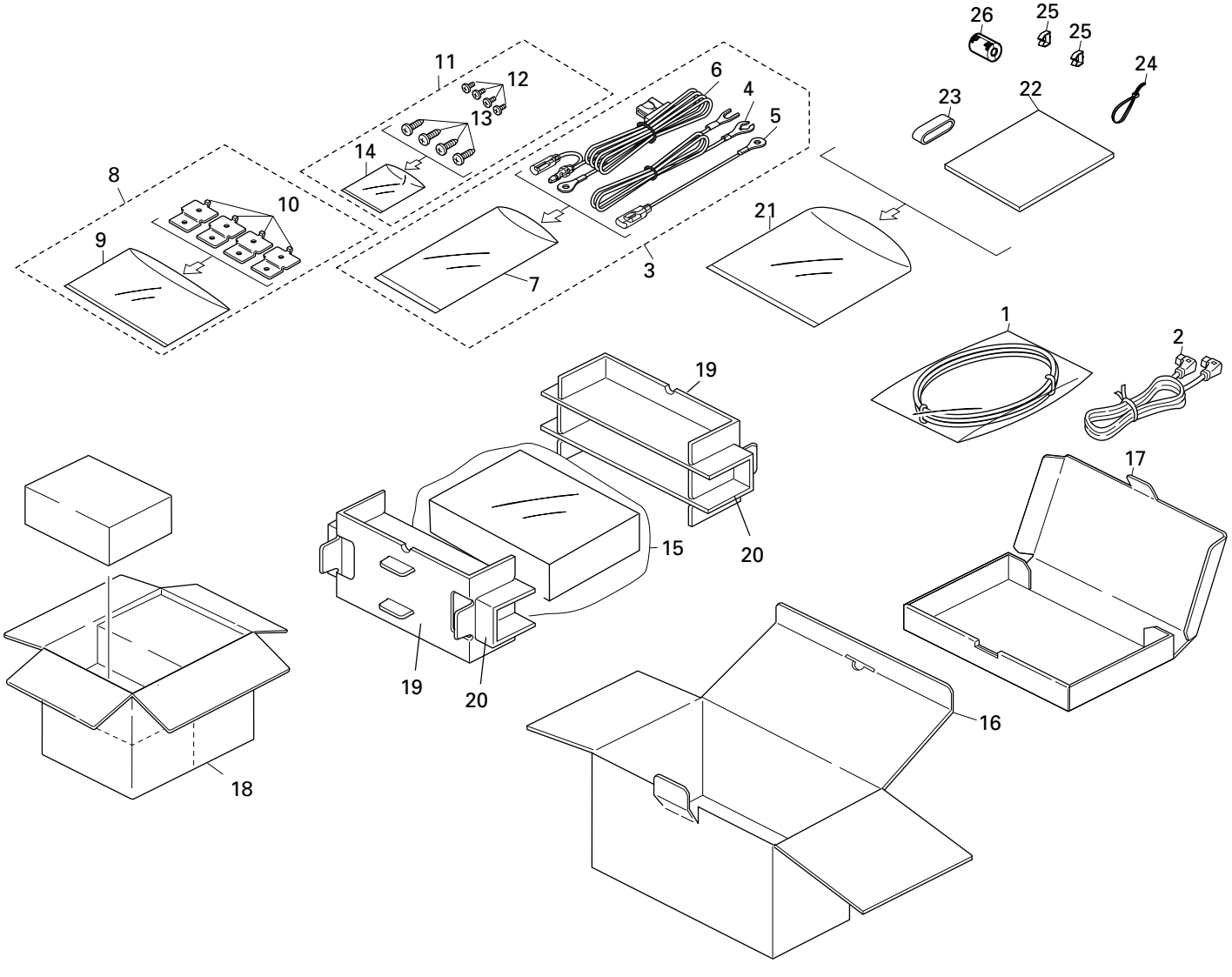
This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer.
Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual.
Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty.
If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.

WARNING

This product contains lead in solder and certain electrical parts contain chemicals which are known to the state of California to cause cancer, birth defects or other reproductive harm.
Health & Safety Code Section 25249.6 - Proposition 65

2. EXPLODED VIEWS AND PARTS LIST

2.1 PACKING



NOTE:

● Parts marked by "*" are generally unavailable because they are not in our Master Spare Parts List.

● Screws adjacent to ∇ mark on the product are used for disassembly.

(1) PACKING SECTION PARTS LIST

Mark	No.	Description	Part No.
	1	Cable	CDE6690
	2	Cord	CDE4167
	3	Cord Assy	CDE6643
	4	Cord	CDE3951
*	5	Cord	CDE6641
*	6	Cord	CDE6644
*	7	Polyethylene Bag	CEG-145
	8	Accessory Assy	CEA1849
*	9	Polyethylene Bag	CEG-020
*	10	Bracket	CNC4763
	11	Screw Assy	CEA2761
	12	Screw	BMZ40P050FMC
	13	Screw	BYC40P120FZK
*	14	Polyethylene Bag	E36-613
	15	Polyethylene Bag	See Contrast table(2)
	16	Carton	See Contrast table(2)
	17	Sub Unit Box	CHG4438
	18	Contain Box	See Contrast table(2)
	19	Protector	CHP2359
	20	Protector	CHP2360
	21	Polyethylene Bag	CEG1116
	22-1	Owner's Manual	See Contrast table(2)
	22-2	Owner's Manual	See Contrast table(2)
	22-3	Owner's Manual	See Contrast table(2)
	22-4	Owner's Manual	See Contrast table(2)
	22-5	Owner's Manual	See Contrast table(2)
	22-6	Owner's Manual	See Contrast table(2)
*	22-7	Warranty Card	See Contrast table(2)
	23	Cover	CNS2726
*	24	Lock Tie	See Contrast table(2)
*	25	Clamper	CNV1272
*	26	Filter	See Contrast table(2)

(2) CONTRAST TABLE

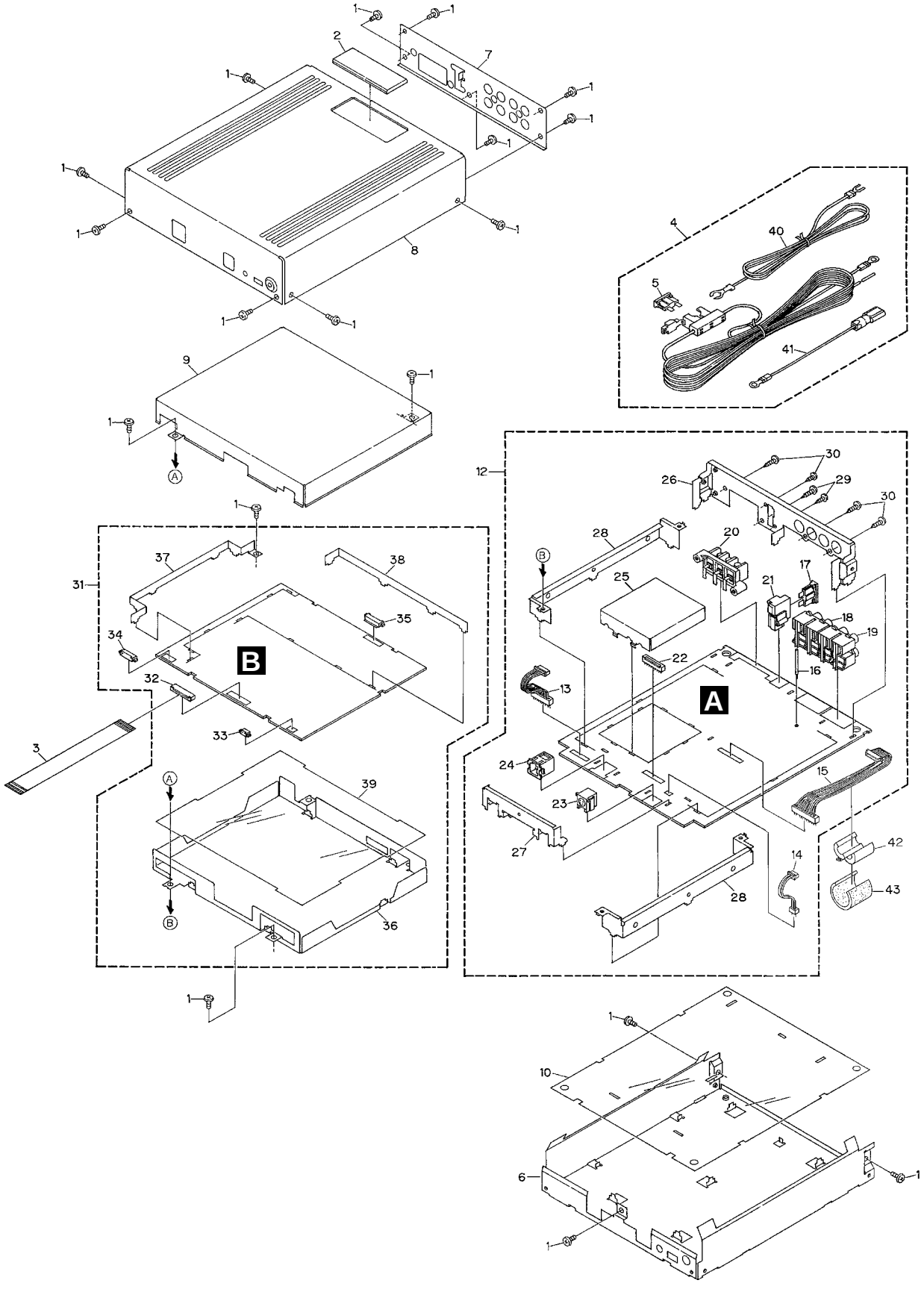
DEQ-P9/UC and EW are constructed the same except for the following:

Mark No.	Symbol and Description	Part No. DEQ-P9/UC	Part No. DEQ-P9/EW
15	Polyethylene Bag	CEG1173	CEG-162
16	Carton	CHG4345	CHG4344
18	Contain Box	CHL4345	CHL4344
22-1	Owner's Manual	CRB1641	CRB1635
22-2	Owner's Manual	CRB1642	CRB1636
22-3	Owner's Manual	Not used	CRB1637
22-4	Owner's Manual	Not used	CRB1638
22-5	Owner's Manual	Not used	CRB1639
22-6	Owner's Manual	Not used	CRB1640
* 22-7	Warranty Card	CRY1070	CRY1157
* 24	Lock Tie	Not used	CNV-754
* 26	Filter	Not used	CTX1060

● Owner's Manual, Installation Manual

Model	Part No.	Language
DEQ-P9/UC	CRB1641	English
	CRB1642	French
DEQ-P9/EW	CRB1635	English
	CRB1636	Spanish
	CRB1637	German
	CRB1638	French
	CRB1639	Italian
	CRB1640	Dutch

2.2 EXTERIOR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19
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16
13
A
24
15
23
27
14
42
43
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37
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35
34
B
32
33
3
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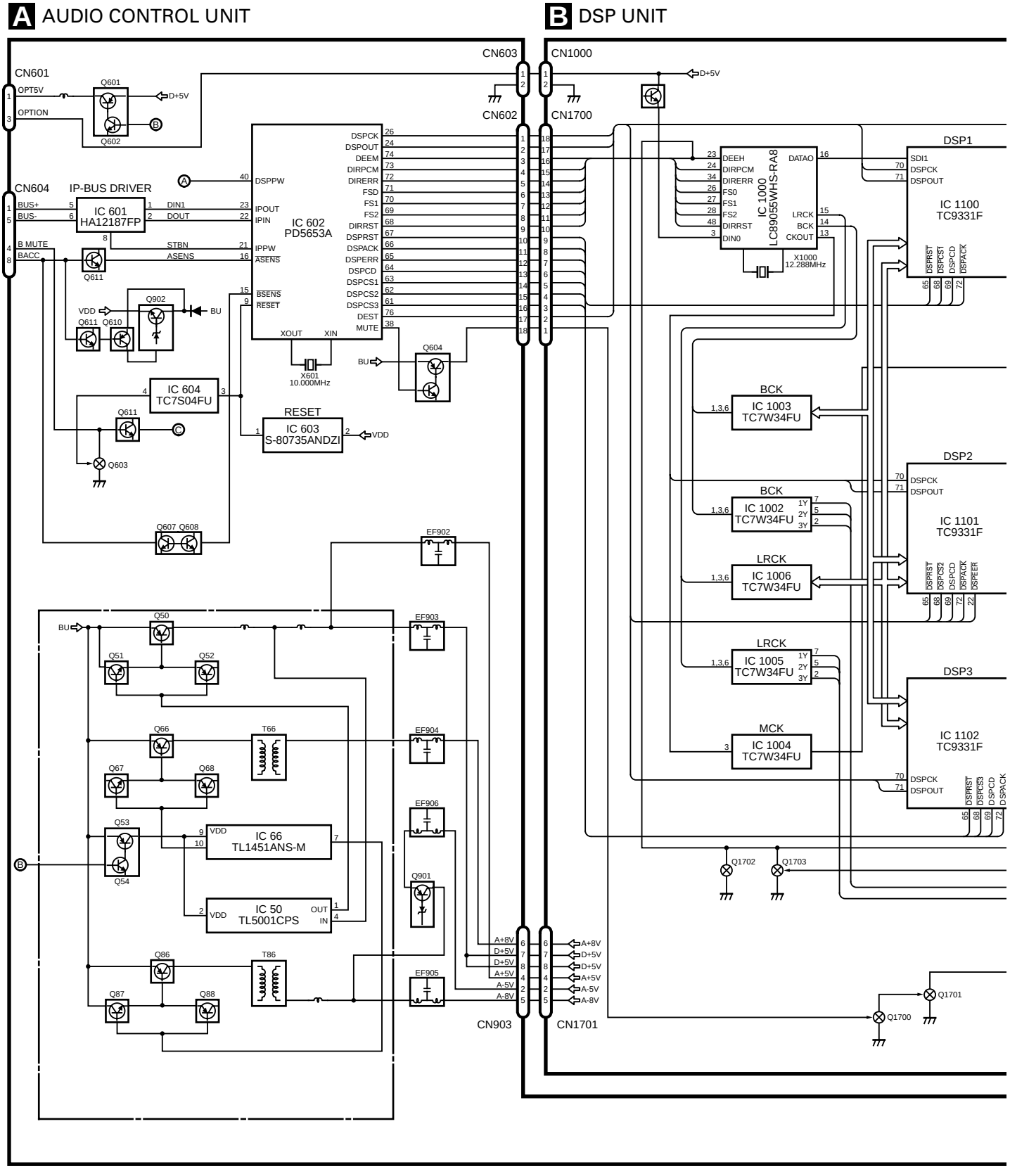
36
10
6

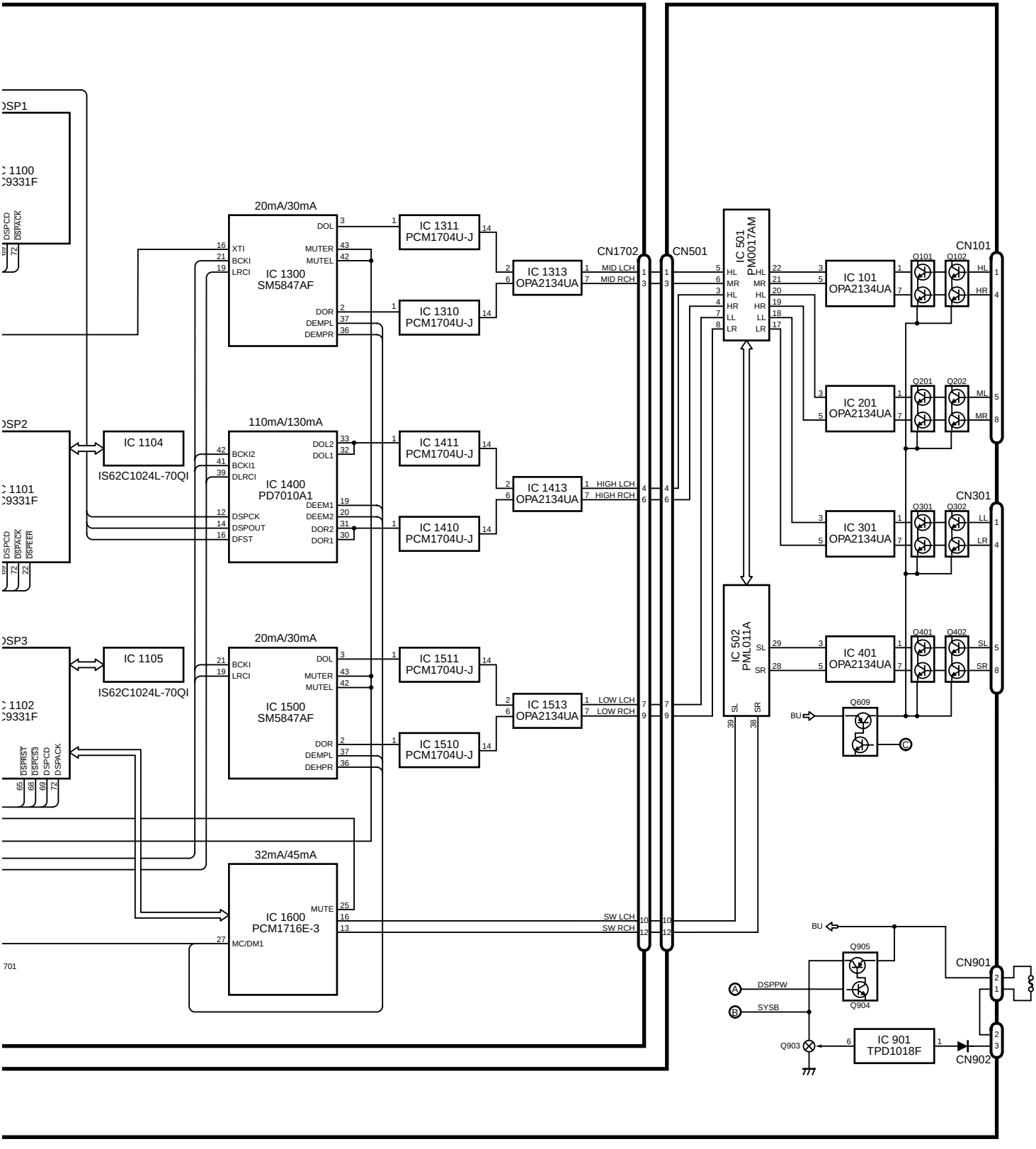
● EXTERIOR SECTION PARTS LIST

Mark	No.	Description	Part No.
	1	Screw	BSZ30P060FZK
*	2	Badge(/UC)	CAH1765
*		Badge(/EW)	CAH1764
	3	Cable	CDE6625
	4	Cord Assy	CDE6643
	5	Fuse(4A)	CEK1001
	6	Chassis	CNA2366
	7	Panel	CNB2636
	8	Case	CNB2634
	9	Case	CNC9165
	10	Insulator	CNM7103
	11	•••••	
	12	Audio Control Unit(/UC)	CWM7506
		Audio Control Unit(/EW)	CWM7507
	13	Connector(CN903)	CDE6309
	14	Connector(CN603)	CDE6462
	15	Connector(CN501)	CDE6463
	16	Clamper	CEF1007
	17	Fuse(4A)	CEK1001
	18	Pin Jack(CN101)	CKB1048
	19	Pin Jack(CN301)	CKB1048
	20	Terminal(CN902)	CKE1033
	21	Fuse Holder(CN901)	CKR1021
*	22	Connector(CN602)	CKS2248
	23	Connector(CN601)	CKS2601
	24	Connector(CN604)	CKS3410
	25	Shield	CNC4761
	26	Holder	CNC9161
	27	Holder	CNC9162
	28	Holder	CNC9163
	29	Screw	PPZ20P060FZK
	30	Screw	PPZ30P080FZK
	31	DSP Unit(/UC)	CWX2519
		DSP Unit(/EW)	CWX2520
	32	Connector(CN1700)	CKS1956
	33	Connector(CN1000)	CKS2191
	34	Connector(CN1701)	CKS2198
*	35	Connector(CN1702)	CKS2201
	36	Shield	CNC9164
	37	Holder	CNC9175
	38	Holder	CNC9176
	39	Insulator	CNM7106
	40	Cord	CDE3951
*	41	Cord	CDE6641
	42	Filter(/EW)	CTX1054
	43	Cushion(/EW)	CNM7567

3. BLOCK DIAGRAM AND SCHEMATIC DIAGRAM

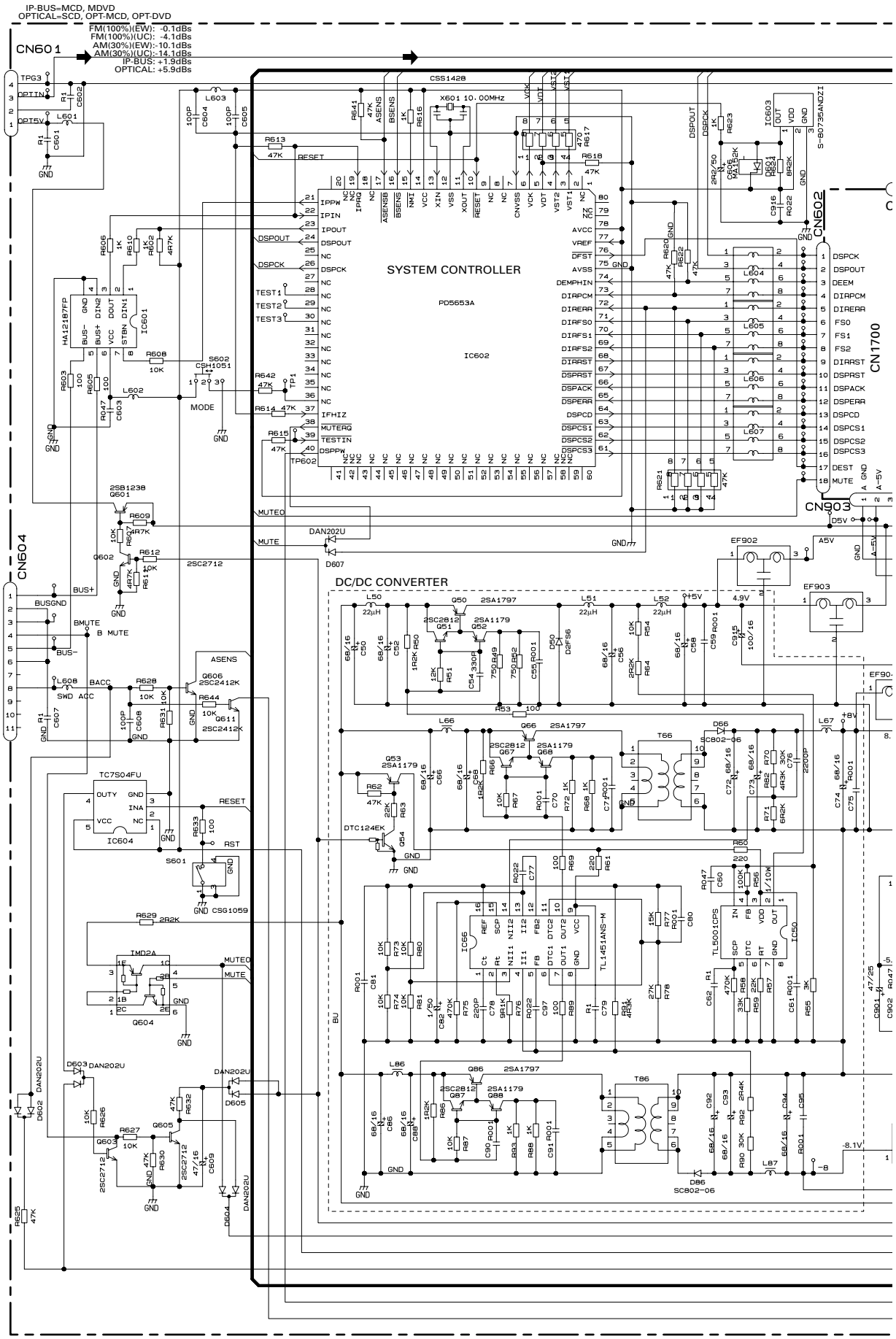
3.1 BLOCK DIAGRAM

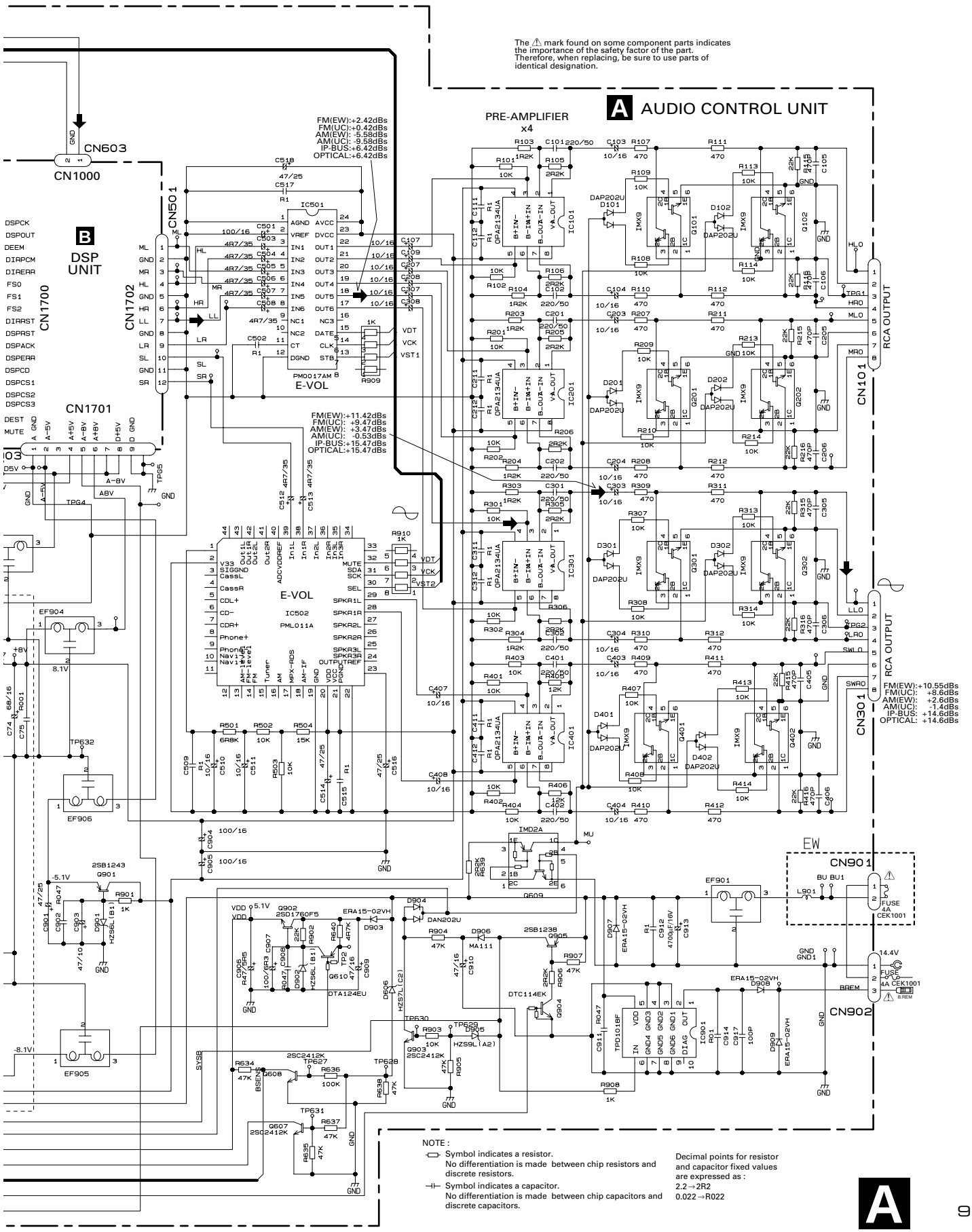



DSP1
IC 1100
DSPCD
DSPACK
20mA/30mA
IC 1300
SM5847AF
XTI
BCKI
LRCI
DOL
MUTER
MUTEL
DOR
DEMPL
DEMPR
IC 1311
PCM1704U-J
IC 1310
PCM1704U-J
IC 1313
OPA2134UA
CN1702
MID LCH
MID RCH
DSP2
IC 1101
IC 1104
IS62C1024L-70QI
110mA/130mA
IC 1400
PD7010A1
BCKI2
BCKI1
DLRCI
DSPCK
DSPOUT
DFST
DEEM1
DEEM2
DOL2
DOL1
DOR2
DOR1
IC 1411
PCM1704U-J
IC 1410
PCM1704U-J
IC 1413
OPA2134UA
HIGH LCH
HIGH RCH
DSP3
IC 1102
IC 1105
IS62C1024L-70QI
DSPRST
DSPCS3
20mA/30mA
IC 1500
SM5847AF
IC 1511
PCM1704U-J
IC 1510
PCM1704U-J
IC 1513
OPA2134UA
LOW LCH
LOW RCH
32mA/45mA
IC 1600
PCM1716E-3
MUTE
MC/DM1
SW LCH
SW RCH
CN501
IC 501
PM0017AM
HL
MR
HR
LL
LR
IC 502
PML011A
SL
SR
IC 101
OPA2134UA
IC 201
OPA2134UA
IC 301
OPA2134UA
IC 401
OPA2134UA
Q101
Q102
Q201
Q202
Q301
Q302
Q401
Q402
CN101
CN301
BU
Q609
Q905
Q904
Q903
DSPPW
SYSB
IC 901
TPD1018F
CN901
CN902

3.2 OVERALL CONNECTION DIAGRAM

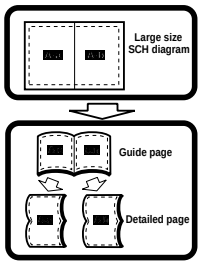
Note: When ordering service parts, be sure to refer to "EXPLODED VIEWS AND PARTS LIST" or "ELECTRICAL PARTS LIST".

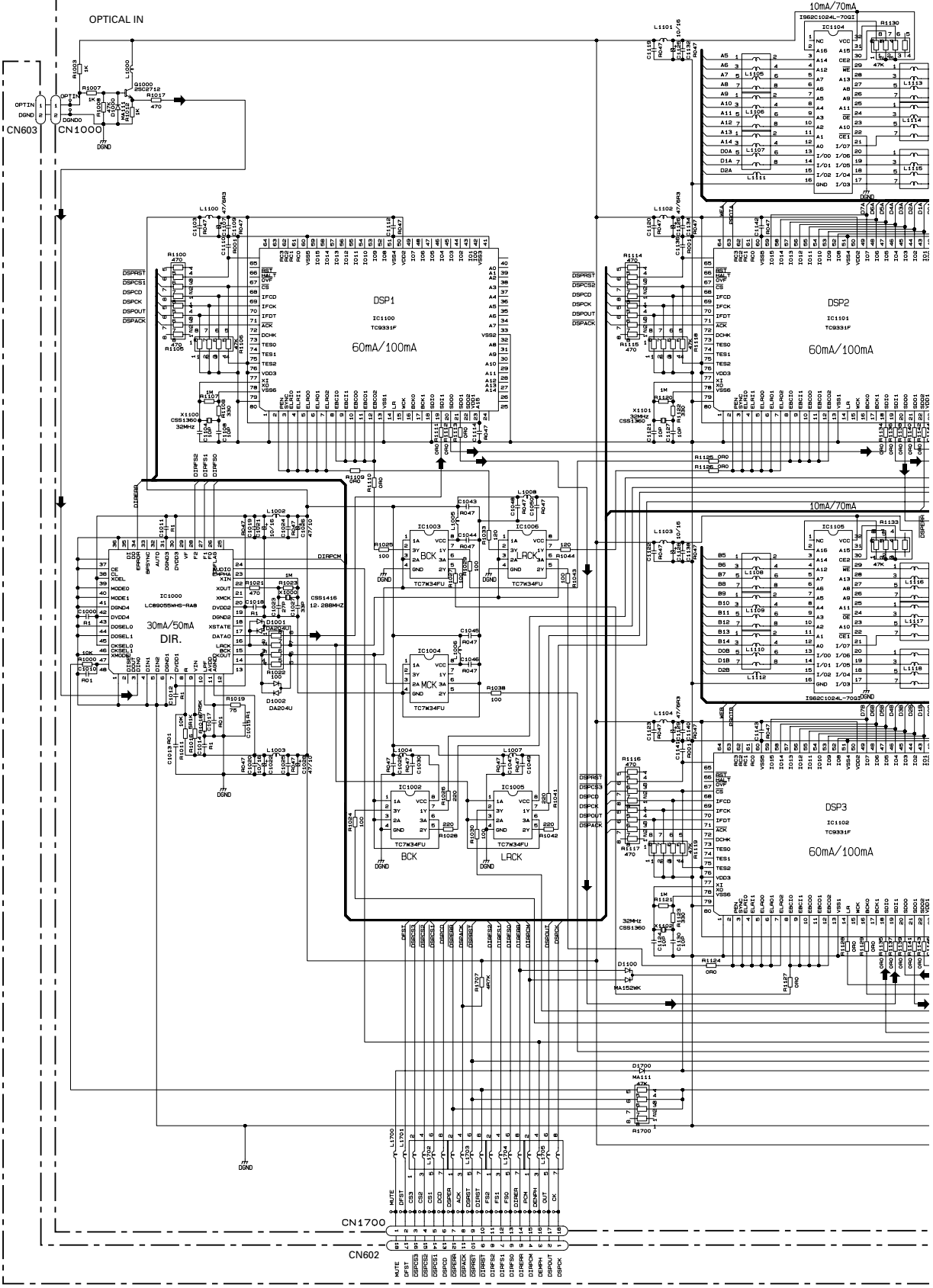



The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
A AUDIO CONTROL UNIT
B DSP UNIT
PRE-AMPLIFIER x4
CN603
CN1000
CN1700
CN1701
CN1702
CN501
CN101
CN201
CN301
CN901
CN902
RCA OUTPUT
E-VOL
PM0017AM
IC502
PML011A
FM(EW):+2.42dBs
FM(UC):+0.42dBs
AM(EW): -5.58dBs
AM(UC): -9.58dBs
IP-BUS:+6.42dBs
OPTICAL:+6.42dBs
FM(EW):+11.42dBs
FM(UC): +9.47dBs
AM(EW): +3.47dBs
AM(UC): -0.53dBs
IP-BUS:+15.47dBs
OPTICAL:+15.47dBs
FM(EW):+10.55dBs
FM(UC): +8.6dBs
AM(EW): +2.6dBs
AM(UC): -1.4dBs
IP-BUS: +14.6dBs
OPTICAL: +14.6dBs
NOTE :
Symbol indicates a resistor.
No differentiation is made between chip resistors and discrete resistors.
Symbol indicates a capacitor.
No differentiation is made between chip capacitors and discrete capacitors.
Decimal points for resistor and capacitor fixed values are expressed as :
2.2→2R2
0.022→R022

3.3 DSP UNIT(GUIDE PAGE)

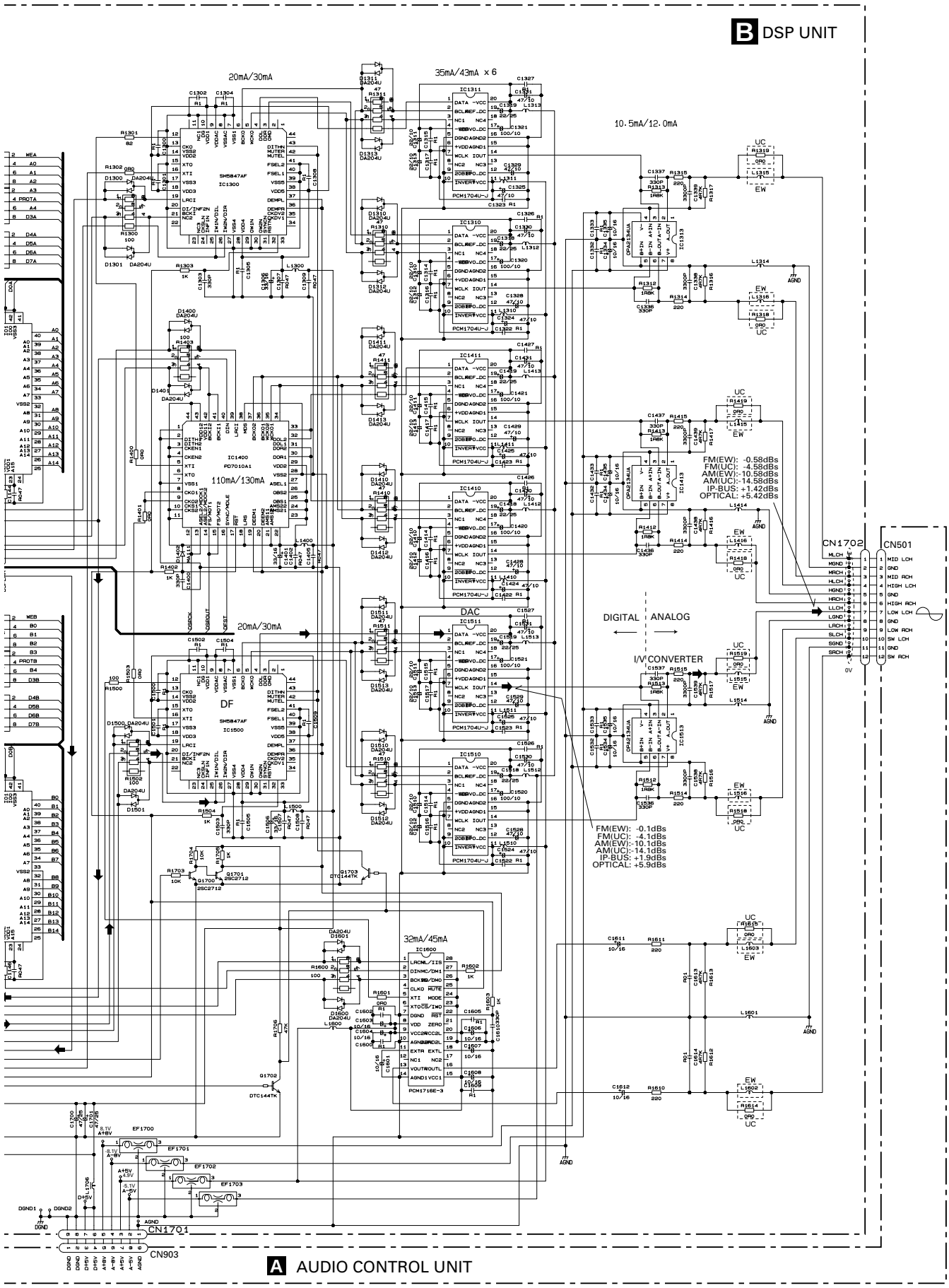
B-a

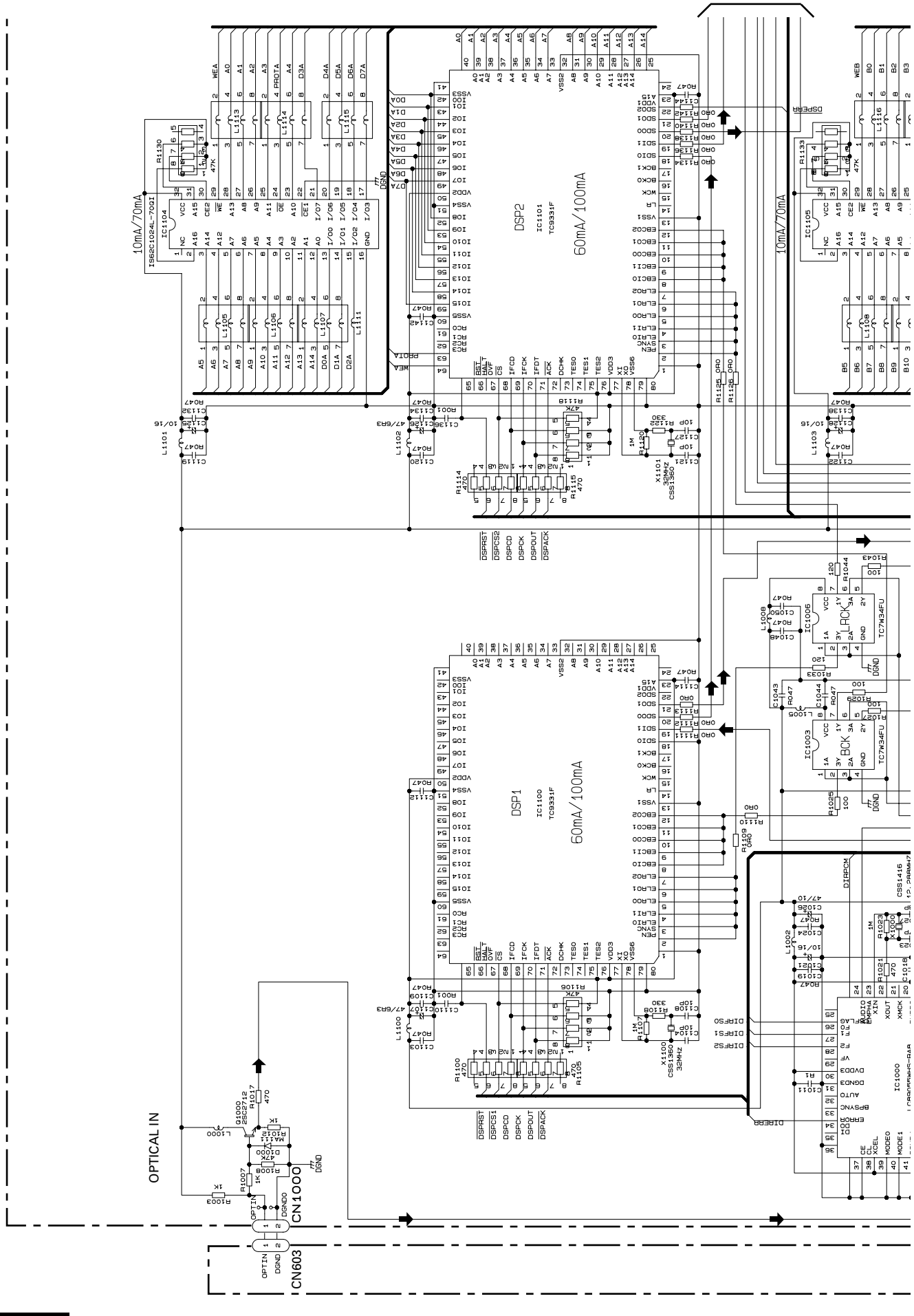


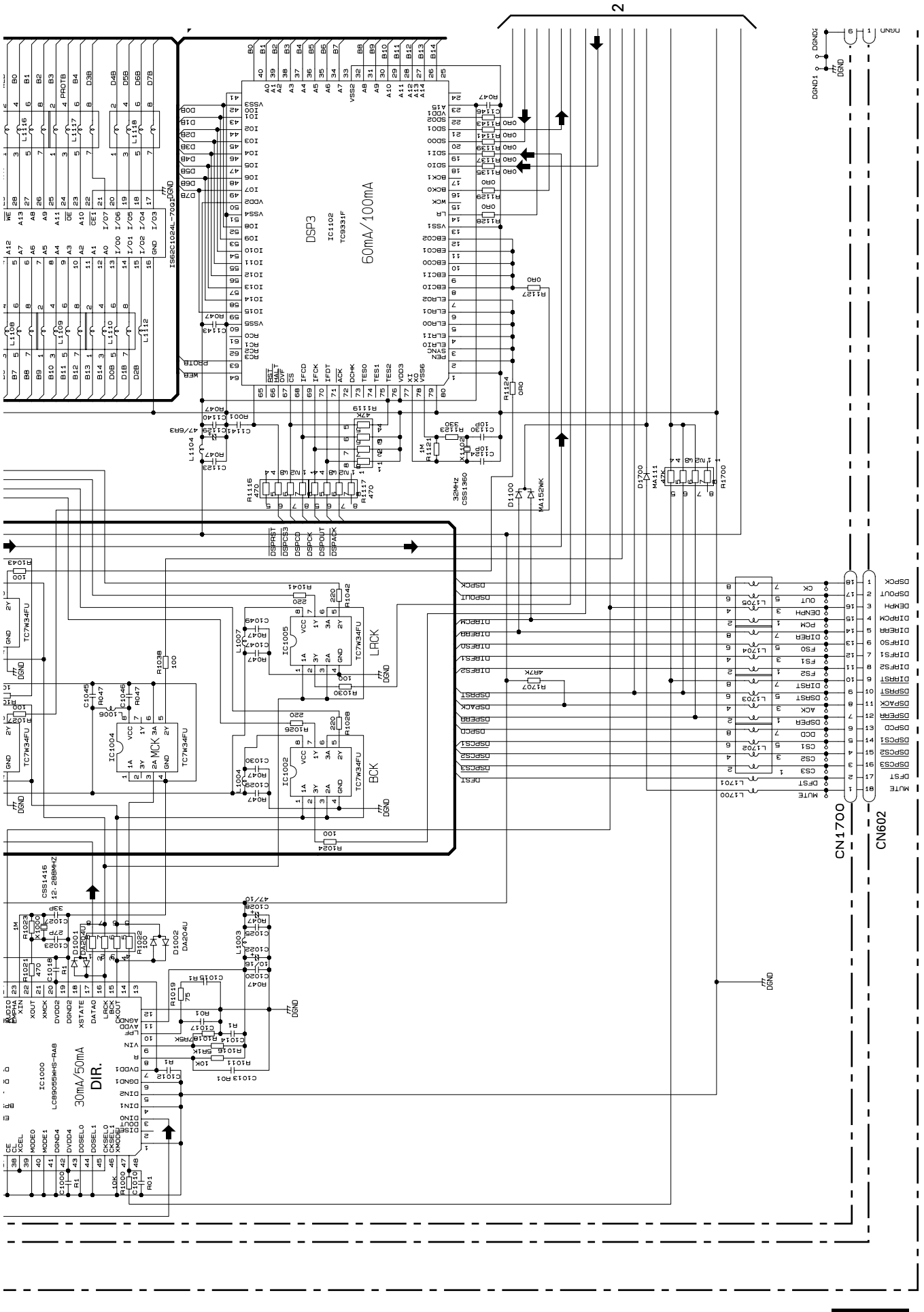


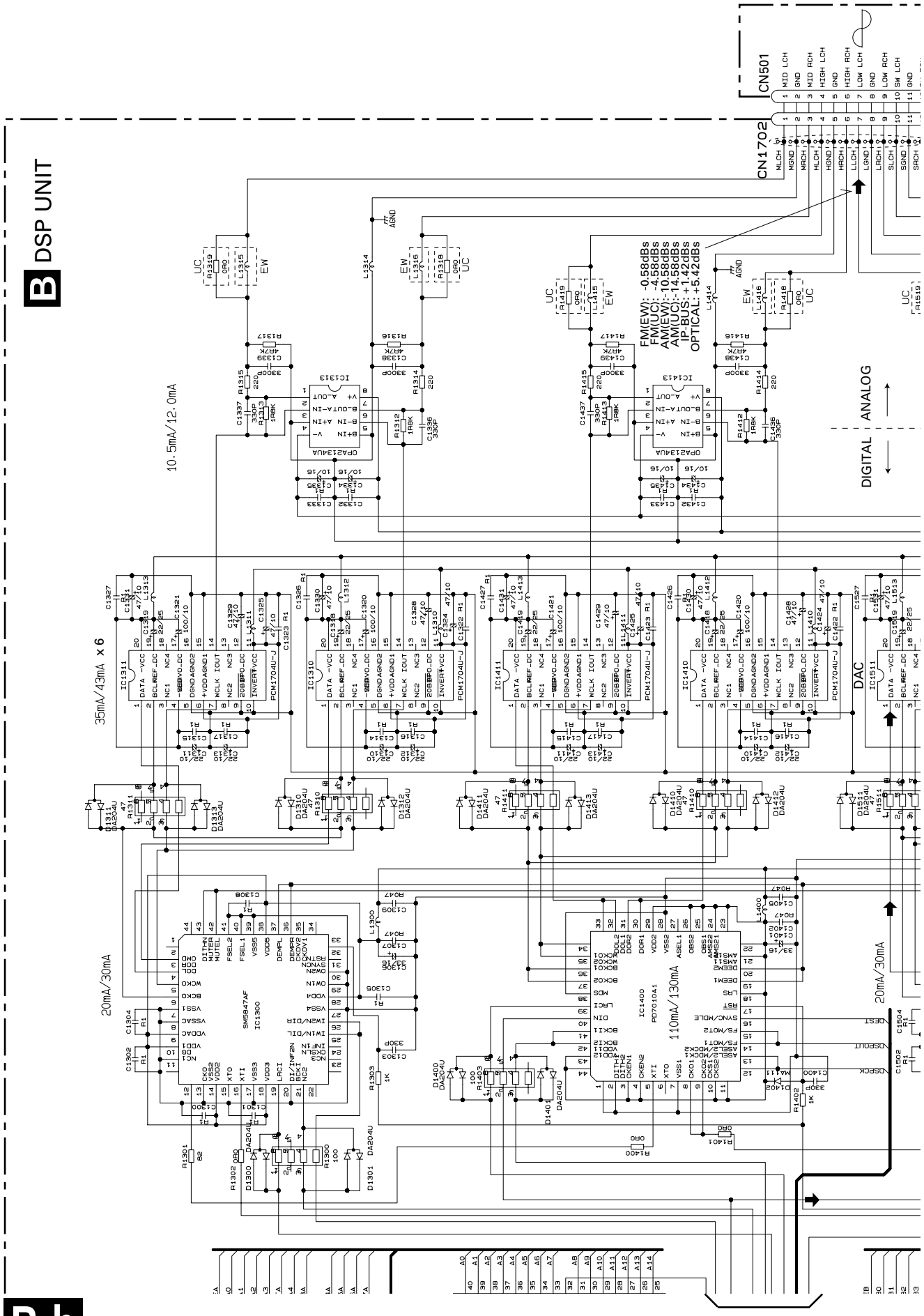
B

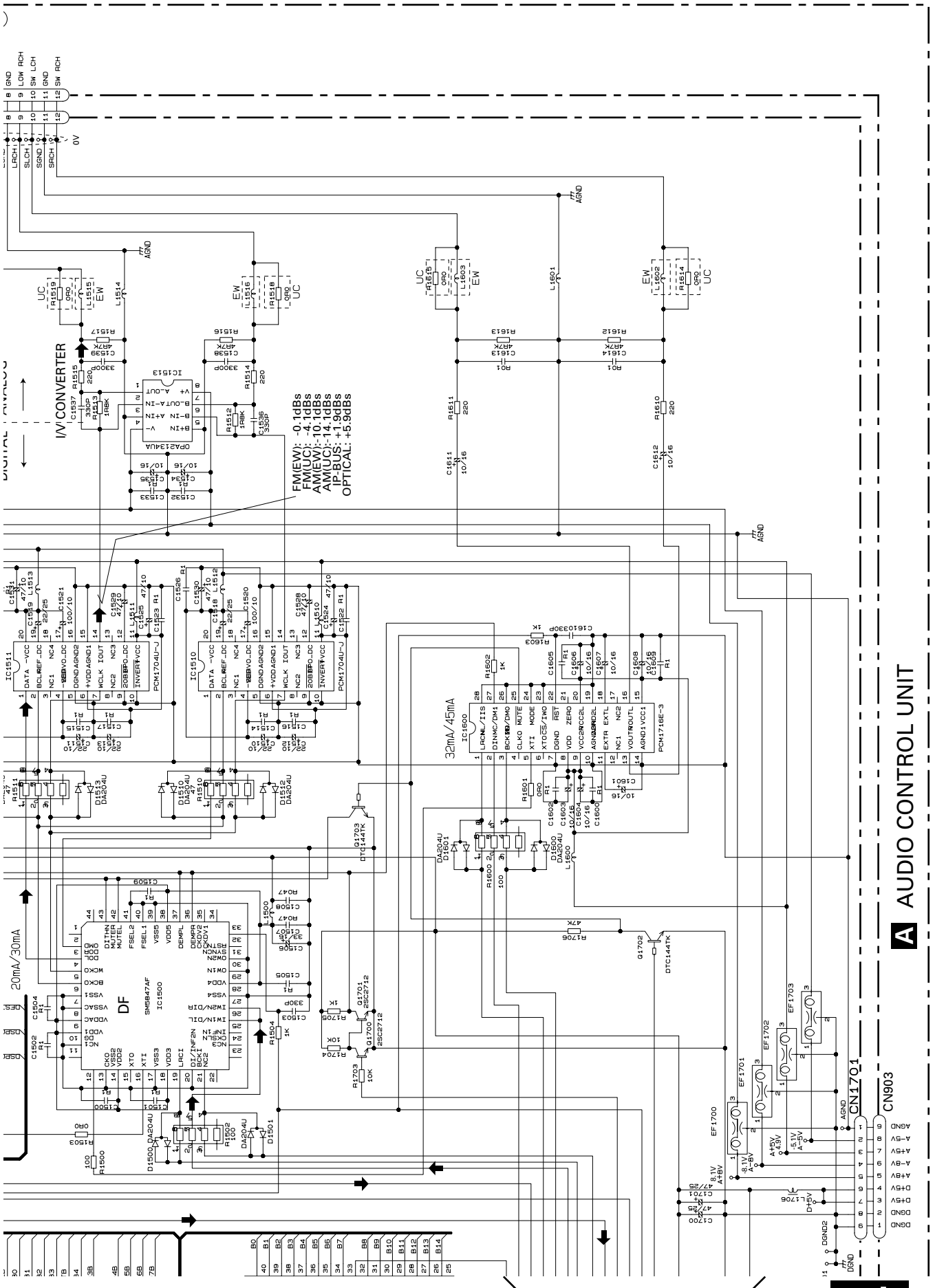
B-b


B DSP UNIT
20mA/30mA
35mA/43mA x 6
10.5mA/12.0mA
110mA/130mA
20mA/30mA
32mA/45mA
DAC
DIGITAL ANALOG
I/V CONVERTER
DF
FM(EW): -0.58dBs
FM(UC): -4.58dBs
AM(EW):-10.58dBs
AM(UC):-14.58dBs
IP-BUS: -1.42dBs
OPTICAL: +5.42dBs
FM(EW): -0.1dBs
FM(UC): -4.1dBs
AM(EW):-10.1dBs
AM(UC):-14.1dBs
IP-BUS: +1.9dBs
OPTICAL: +5.9dBs
CN1702
CN501
CN1701
CN903
A AUDIO CONTROL UNIT


B-b
B-a
DSP2
IC1101
TC9331F
60mA/100mA
DSP1
IC1100
TC9331F
60mA/100mA
10mA/70mA
IS62C1024L-70QI
IC1104
OPTICAL IN
CN1000
CN603
OPTIN
DGNDO
DSPRST
DSPCS2
DSPCD
DSPCK
DSPOUT
DSPACK
DSPCS1
DIRPCM
DIRFS0
DIRFS1
DIRFS2
DIBERR
DSPERR
IC1000
CS8416
IC1003
IC1006
TC7W34FU
X1100
X1101
32MHz
CSS1360


DSP3
IC1102
TC9331F
60mA/100mA
IS62C1024L-70QLI
IC1000
LC89056WHS-RA8
30mA/50mA
DIR.
IC1004
IC1005
IC1002
TC7W34FU
MCK
LRCK
BCK
CN1700
CN602
DGND
DSPRST
DSPCS3
DSPCD
DSPCK
DSPOUT
DSPACK
32MHz
CSS1360
12.288MHz
CSS1416
MA152WK
MA111


B DSP UNIT
CN501
CN1702
MID LCH
GND
MID RCH
HIGH LCH
GND
HIGH RCH
LOW LCH
GND
LOW RCH
SW LCH
GND
MLCH
MGND
MRCH
HLCH
HGND
HRCH
LLCH
LGND
LRCH
SLCH
SGND
SRCH
FM(EW): -0.58dBs
FM(UC): -4.58dBs
AM(EW):-10.58dBs
AM(UC):-14.58dBs
IP-BUS: +1.42dBs
OPTICAL: +5.42dBs
DIGITAL
ANALOG
10.5mA/12.0mA
35mA/43mA x 6
20mA/30mA
110mA/130mA
20mA/30mA
DAC
IC1313
IC1413
IC1311
IC1310
IC1411
IC1410
IC1511
IC1300
IC1400
OPA2134UA
PCM1704U-J
SM5847AF
PD7010A1
B-b


A AUDIO CONTROL UNIT
I/V CONVERTER
FM(EW): -0.1dBs
FM(UC): -4.1dBs
AM(EW):-10.1dBs
AM(UC):-14.1dBs
IP-BUS: +1.9dBs
OPTICAL: +5.9dBs
32mA/45mA
20mA/30mA
CN1701
CN903
B-a B-b
B-b

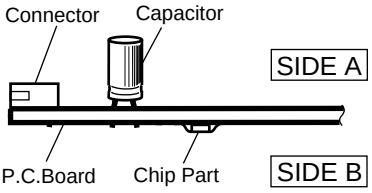
4. PCB CONNECTION DIAGRAM

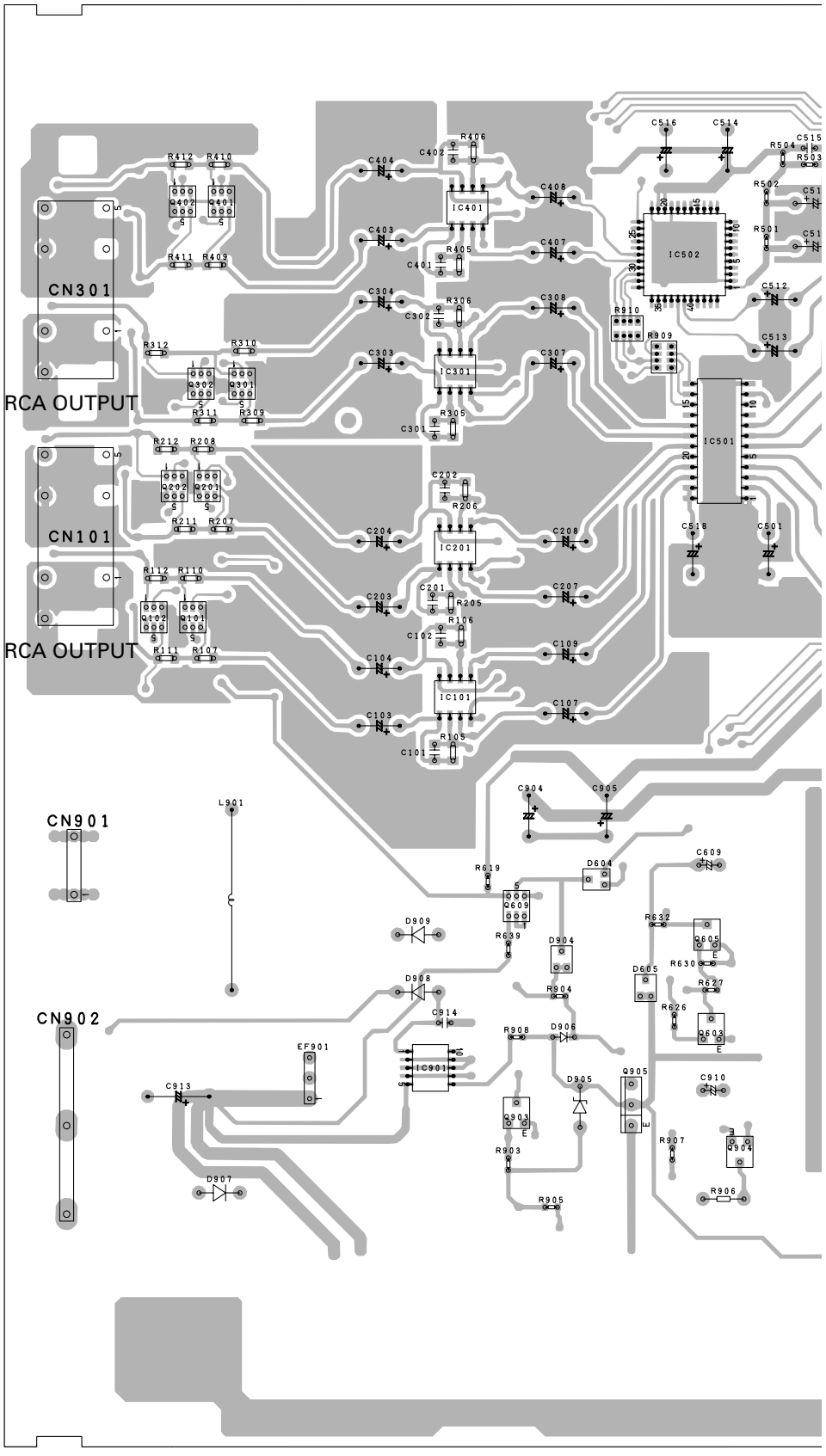
4.1 AUDIO CONTROL UNIT

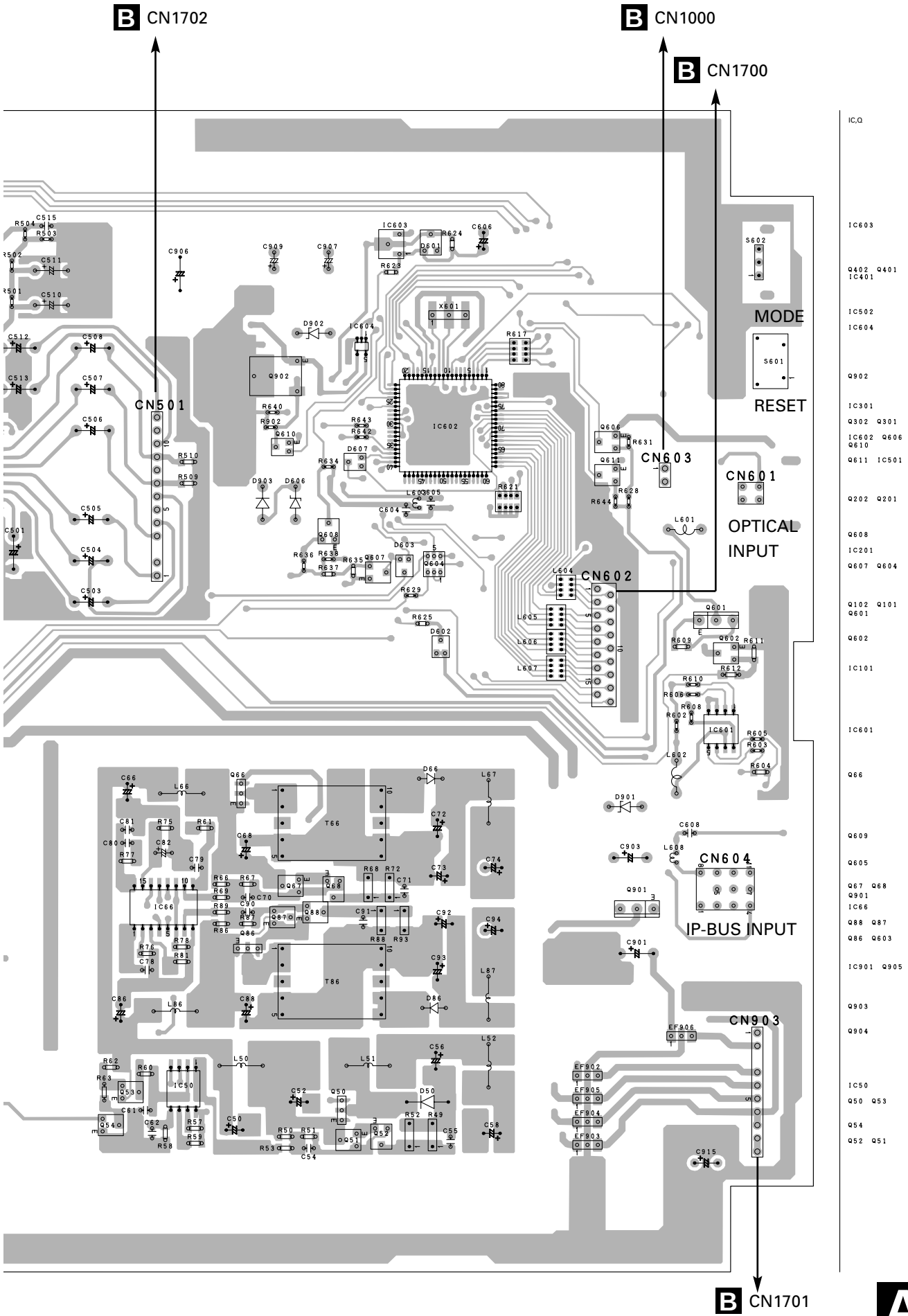
A AUDIO CONTROL UNIT

NOTE FOR PCB DIAGRAMS

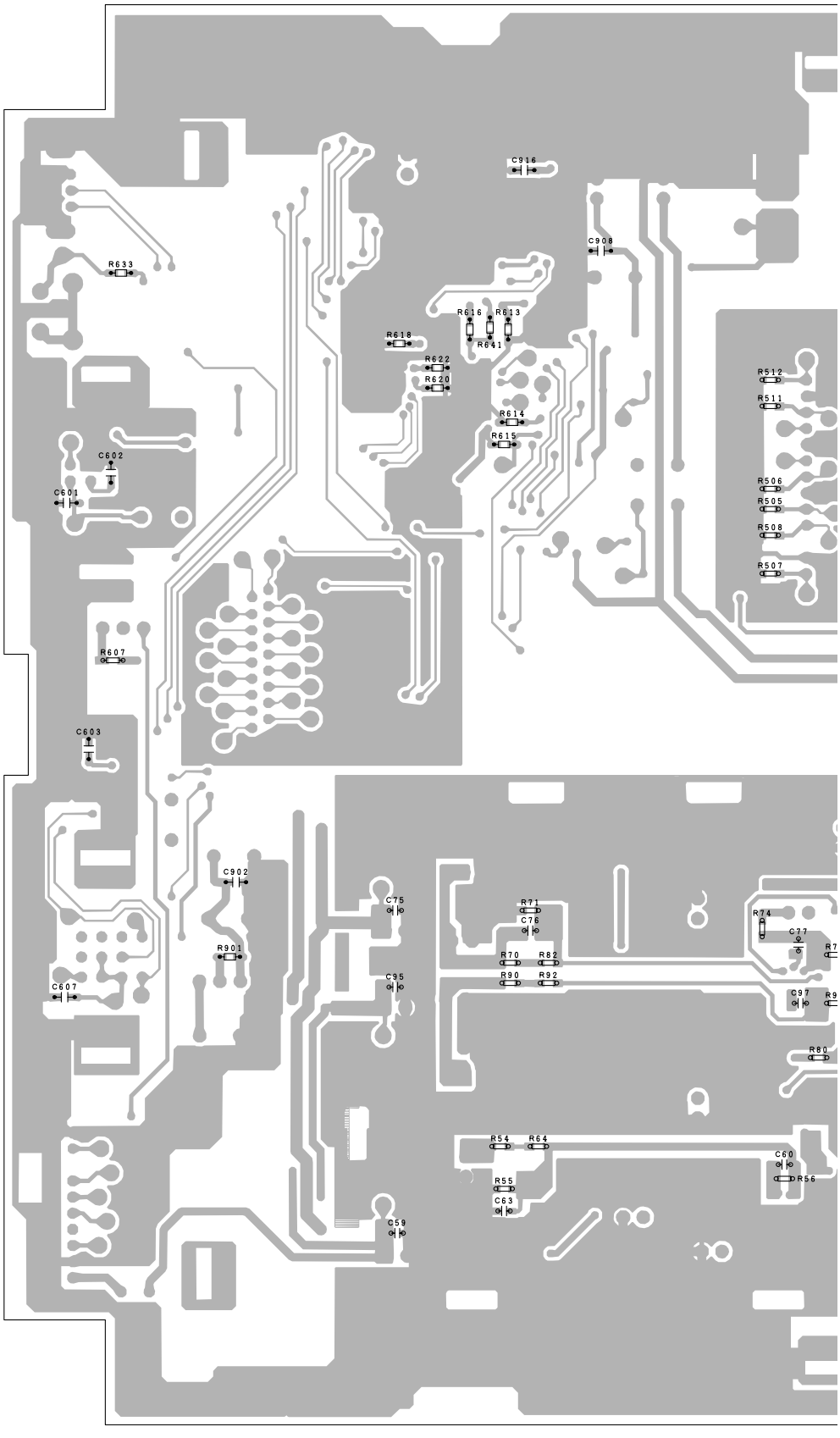
1. The parts mounted on this PCB include all necessary parts for several destination.
   For further information for respective destinations, be sure to check with the schematic diagram.
2. Viewpoint of PCB diagrams



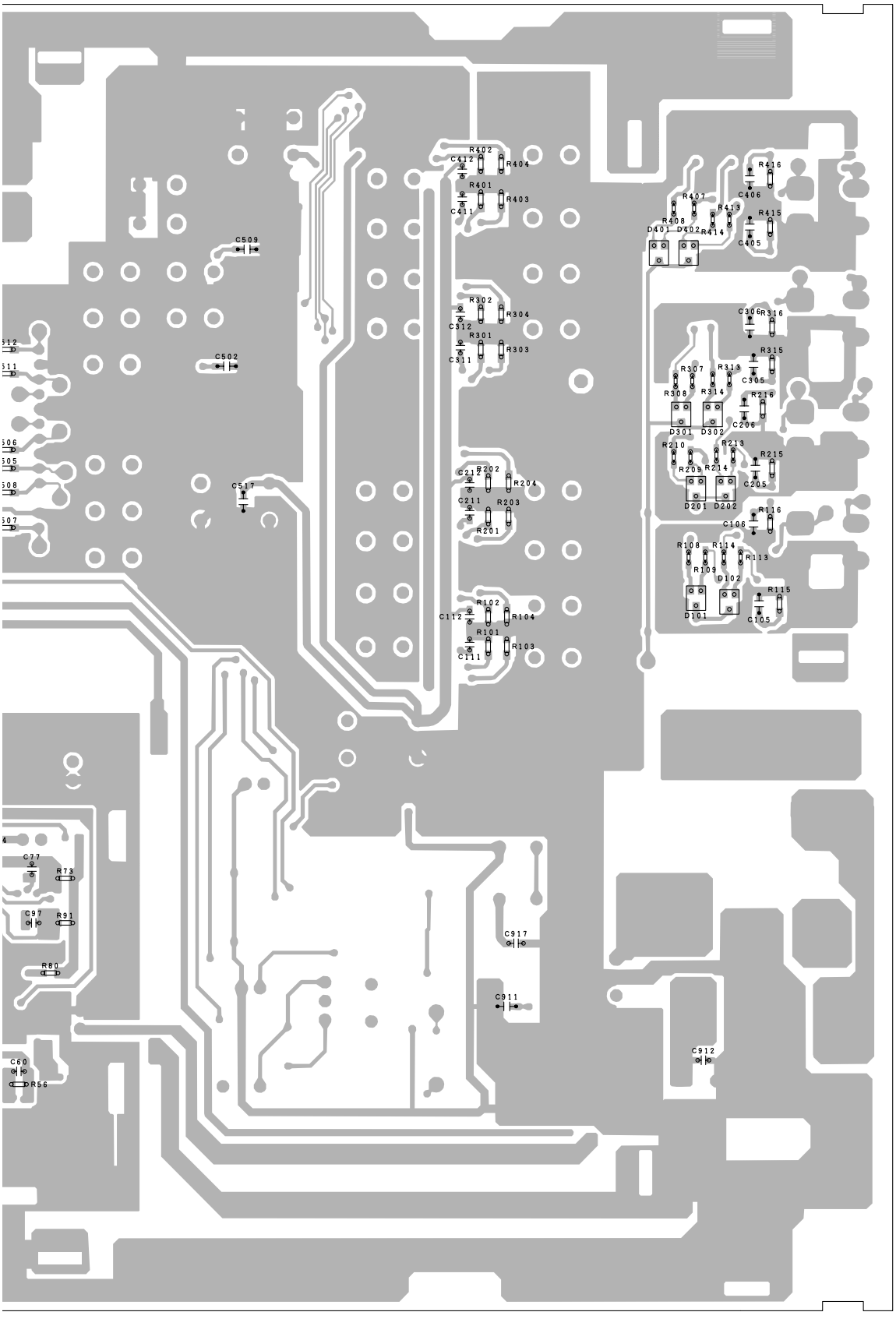



B CN1702
B CN1000
B CN1700
SIDE A
CN501
MODE
S602
S601
RESET
CN603
CN601
OPTICAL
INPUT
CN602
CN604
IP-BUS INPUT
CN903
B CN1701
IC,Q
IC603
Q402 Q401
IC401
IC502
IC604
Q902
IC301
Q302 Q301
IC602 Q606
Q610
Q611 IC501
Q202 Q201
Q608
IC201
Q607 Q604
Q102 Q101
Q601
Q602
IC101
IC601
Q66
Q609
Q605
Q67 Q68
Q901
IC66
Q88 Q87
Q86 Q603
IC901 Q905
Q903
Q904
IC50
Q50 Q53
Q54
Q52 Q51

A AUDIO CONTROL UNIT



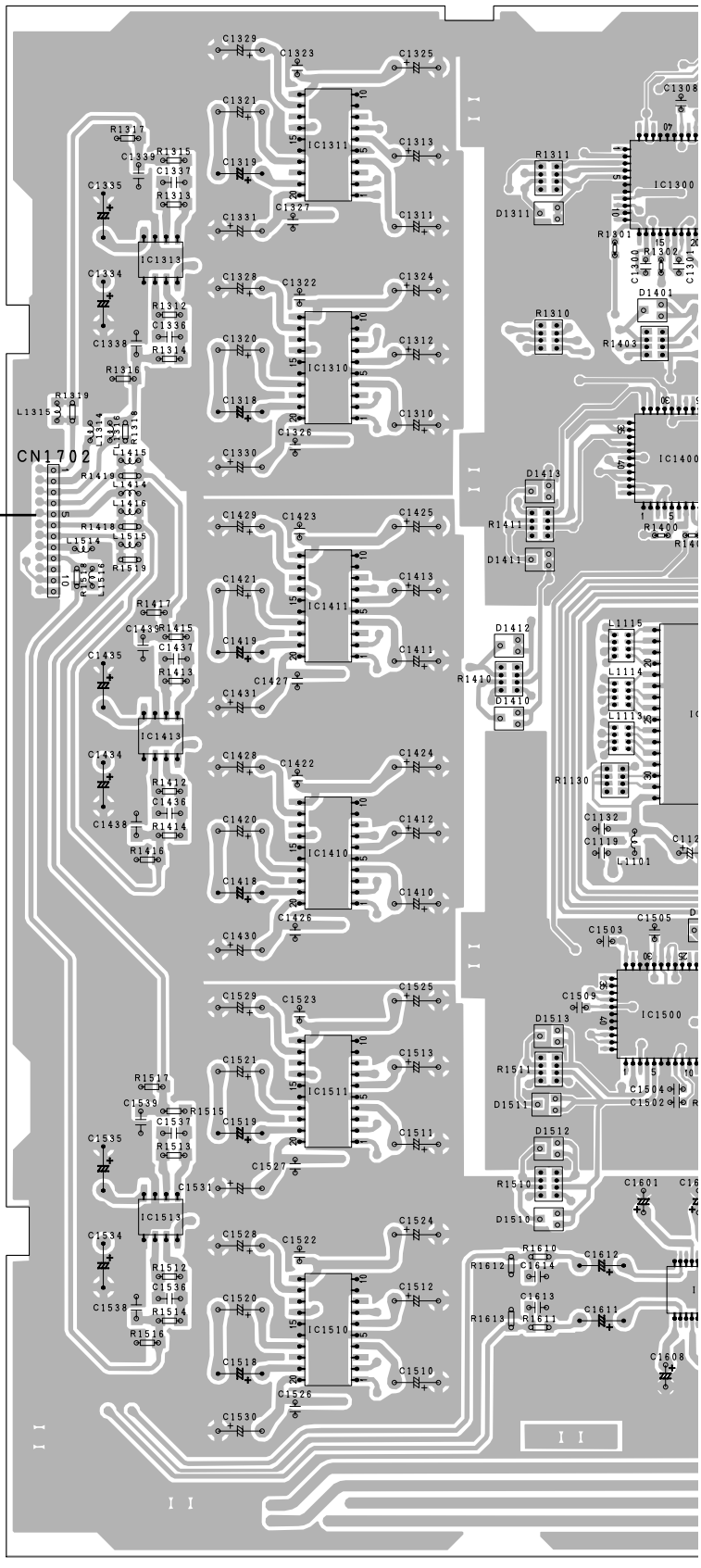
SIDE B


R402
C412
R404
R401
C411
R403
C509
R302
C312
R304
R301
C311
R303
C502
C517
C202
R204
C211
R203
R201
R102
C112
R104
R101
C111
R103
R407
C406
R416
R408
D401
D402
R413
R414
R415
C405
C306
R316
R315
R307
R313
C305
R308
R314
R216
C206
D301
D302
R210
R213
R215
R209
R214
C205
D201
D202
R116
C106
R108
R114
R113
R109
D102
R115
D101
C105
C77
R73
C97
R91
R80
C917
C911
C912
C60
R56

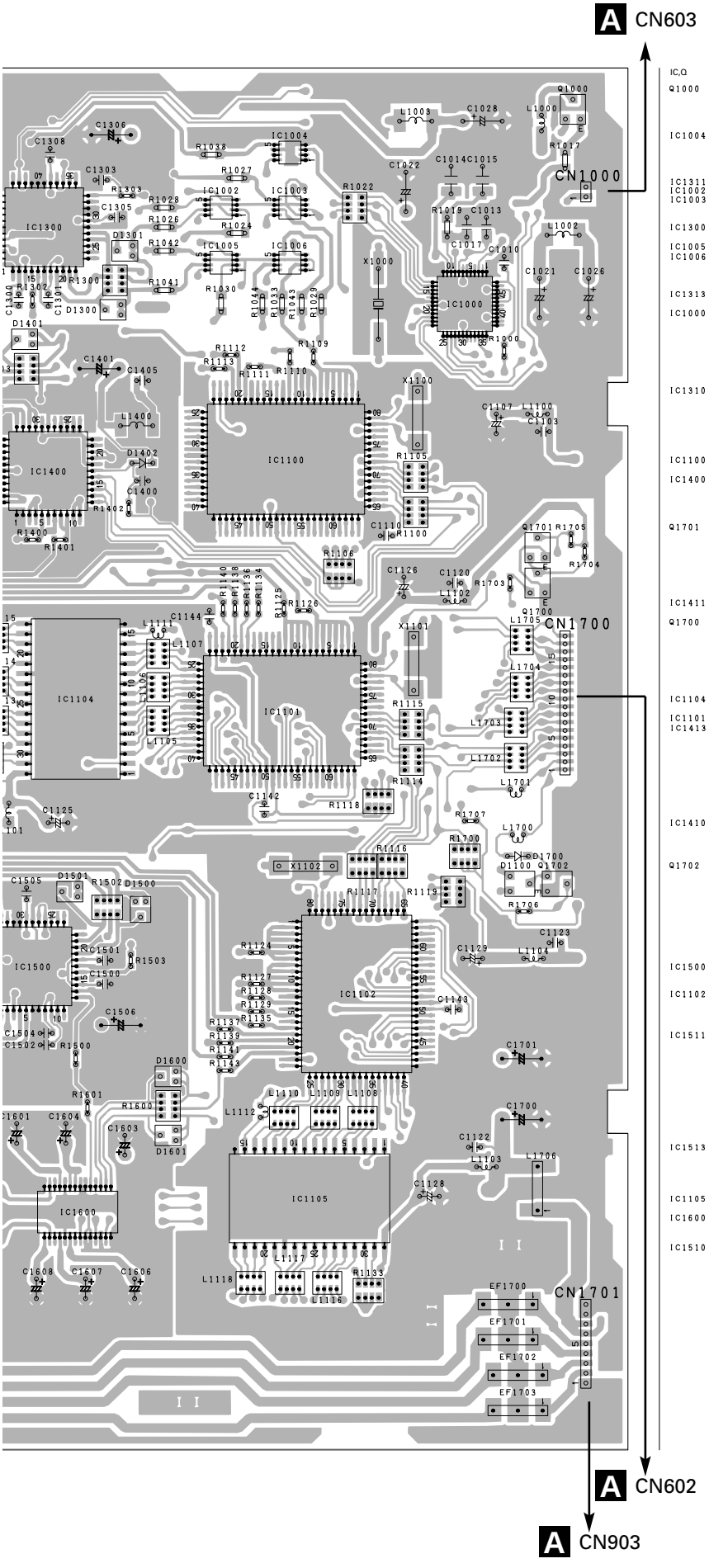
B DSP UNIT

4.2 DSP UNIT

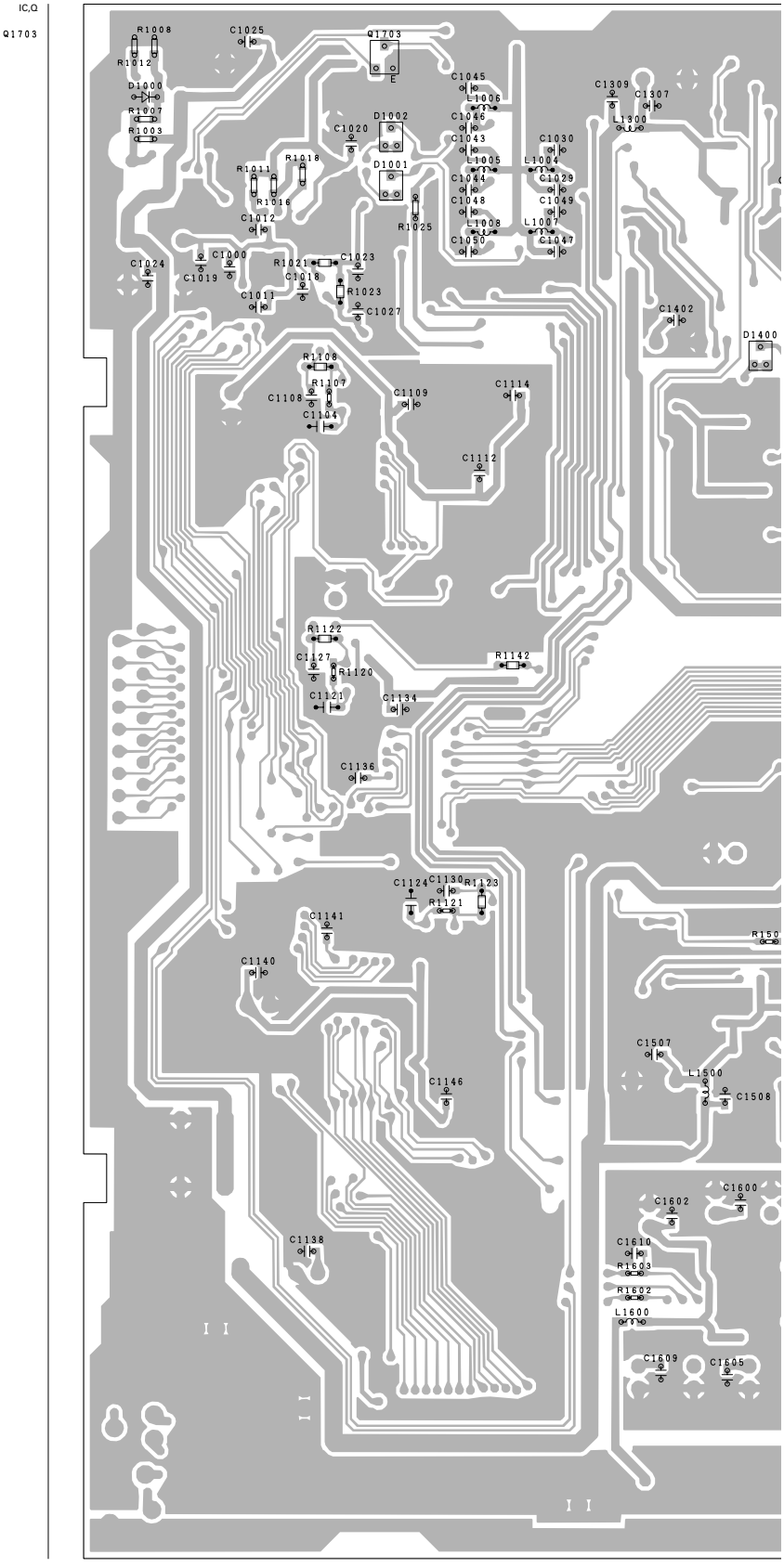
A CN501



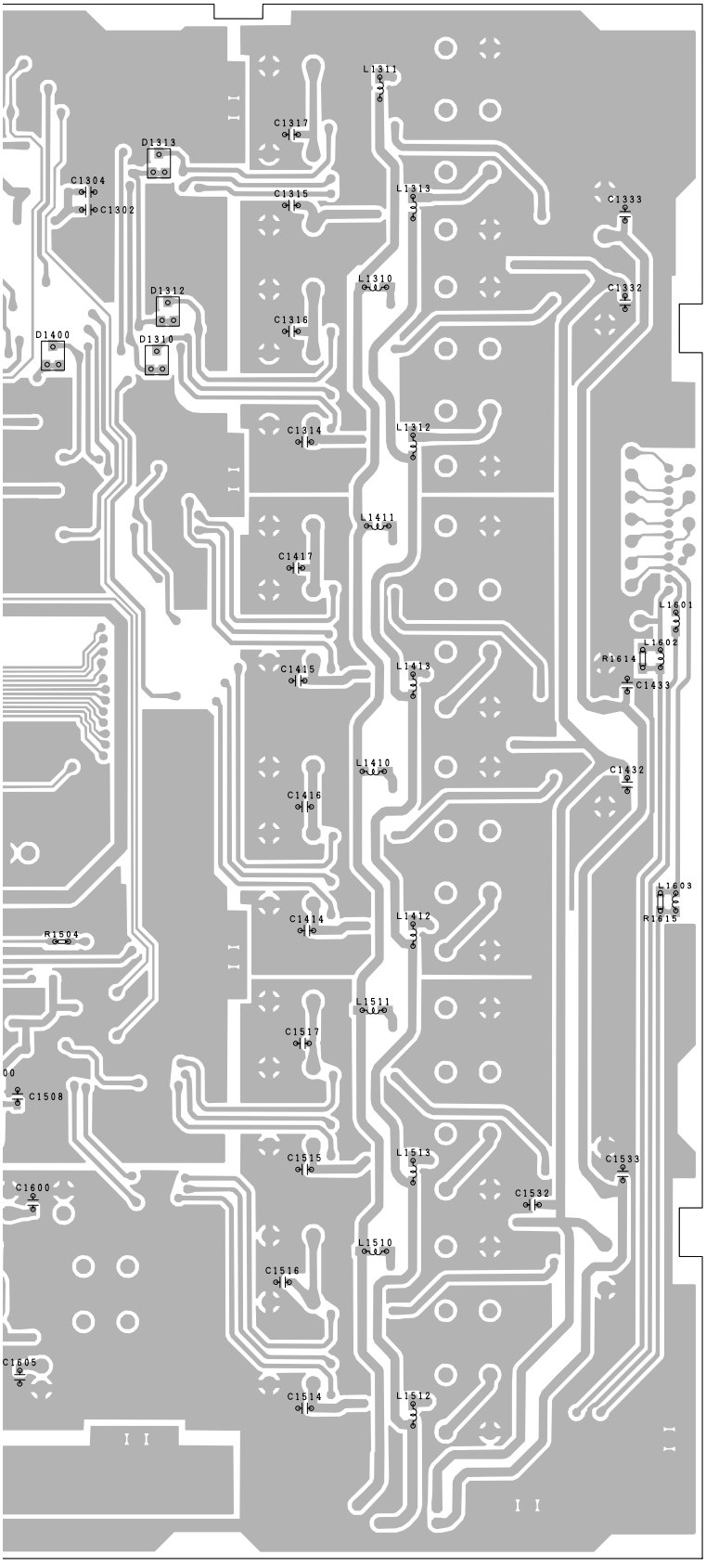
SIDE A


A CN603
CN1000
CN1700
CN1701
A CN602
A CN903
IC,Q
Q1000
IC1004
IC1311
IC1002
IC1003
IC1300
IC1005
IC1006
IC1313
IC1000
IC1310
IC1100
IC1400
Q1701
IC1411
Q1700
IC1104
IC1101
IC1413
IC1410
Q1702
IC1500
IC1102
IC1511
IC1513
IC1105
IC1600
IC1510

B DSP UNIT


IC,Q
Q1703
R1008
C1025
R1012
Q1703
E
D1000
R1007
R1003
C1045
L1006
C1309
C1307
L1300
C1020
D1002
C1046
C1043
C1030
L1004
R1018
R1011
D1001
L1005
C1029
C1044
R1016
C1048
C1049
R1025
L1008
L1007
C1012
C1050
C1047
C1024
C1000
C1019
R1021
C1023
C1018
R1023
C1011
C1027
C1402
D1400
R1108
R1107
C1108
C1109
C1114
C1104
C1112
R1122
C1127
R1120
R1142
C1121
C1134
C1136
C1124
C1130
R1123
R1121
C1141
R150
C1140
C1507
L1500
C1508
C1146
C1600
C1602
C1610
R1603
R1602
L1600
C1138
C1609
C1605

SIDE B


L1311
C1317
D1313
C1304
C1315
C1302
L1313
C1333
L1310
C1332
D1312
C1316
D1400
D1310
C1314
L1312
L1411
C1417
L1601
L1602
R1614
C1415
L1413
C1433
L1410
C1432
C1416
L1603
R1615
C1414
L1412
R1504
L1511
C1517
C1508
C1515
L1513
C1533
C1600
C1532
L1510
C1516
C1505
C1514
L1512

A
B
C
D

5. ELECTRICAL PARTS LIST

NOTES:

- Parts whose parts numbers are omitted are subject to being not supplied.
- The part numbers shown below indicate chip components.

Chip Resistor

RS1/○S○○○J,RS1/○○S○○○J

Chip Capacitor (except for CQS.....)

CKS....., CCS....., CSZS.....

A Unit Number : CWM7506(DEQ-P9/UC)
Unit Number : CWM7507(DEQ-P9/EW)
Unit Name : Audio Control Unit

MISCELLANEOUS

=====Circuit Symbol and No.		===Part Name	Part No.
IC	50	IC	TL5001CPS
IC	66	IC	TL1451ANS-M
IC	101	IC	OPA2134UA
IC	201	IC	OPA2134UA
IC	301	IC	OPA2134UA
IC	401	IC	OPA2134UA
IC	501	IC	PM0017AM
IC	502	IC	PML011A
IC	601	IC	HA12187FP
IC	602	IC	PD5653A
IC	603	IC	S-80735ANDZI
IC	604	IC	TC7S04FU
IC	901	IC	TPD1018F
Q	50	Transistor	2SA1797
Q	51	Transistor	2SC2812
Q	52	Transistor	2SA1179
Q	53	Transistor	2SA1179
Q	54	Transistor	DTC124EK
Q	66	Transistor	2SA1797
Q	67	Transistor	2SC2812
Q	68	Transistor	2SA1179
Q	86	Transistor	2SA1797
Q	87	Transistor	2SC2812
Q	88	Transistor	2SA1179
Q	101	Transistor	IMX9
Q	102	Transistor	IMX9
Q	201	Transistor	IMX9
Q	202	Transistor	IMX9
Q	301	Transistor	IMX9
Q	302	Transistor	IMX9
Q	401	Transistor	IMX9
Q	402	Transistor	IMX9
Q	601	Transistor	2SB1238
Q	602	Transistor	2SC2712
Q	603	Transistor	2SC2712
Q	604	Transistor	IMD2A
Q	605	Transistor	2SC2712
Q	606	Transistor	2SC2412K
Q	607	Transistor	2SC2412K
Q	608	Transistor	2SC2412K
Q	609	Transistor	IMD2A
Q	610	Transistor	DTA124EU
Q	611	Transistor	2SC2412K
Q	901	Transistor	2SB1243
Q	902	Transistor	2SD1760F5
Q	903	Transistor	2SC2412K
Q	904	Transistor	DTC114EK
Q	905	Transistor	2SB1238
D	50	Diode	D2FS6
D	66	Diode	SC802-06
D	86	Diode	SC802-06
D	101	Diode	DAP202U
D	102	Diode	DAP202U
D	201	Diode	DAP202U
D	202	Diode	DAP202U
D	301	Diode	DAP202U
D	302	Diode	DAP202U
D	401	Diode	DAP202U
D	402	Diode	DAP202U
D	601	Diode	MA152K
D	602	Diode	DAN202U
D	603	Diode	DAN202U
D	604	Diode	DAN202U
D	605	Diode	DAN202U
D	606	Diode	HZS7L(C2)
D	607	Diode	DAN202U
D	901	Diode	HZS6L(B1)
D	902	Diode	HZS6L(B1)
D	903	Diode	ERA15-02VH
D	904	Diode	DAN202U
D	905	Diode	HZS9L(A2)
D	906	Diode	MA111
D	907	Diode	ERA15-02VH
D	908	Diode	ERA15-02VH
D	909	Diode	ERA15-02VH
L	50	Choke Coil 22µH	CTH1109
L	51	Choke Coil 22µH	CTH1109
L	52	Choke Coil 22µH	CTH1109
L	66	Coil	CTH1110
L	67	Coil	CTH1110
L	86	Coil	CTH1110
L	87	Coil	CTH1110
L	601	Inductor	LAU1R5K
L	602	Inductor	LAU3R3K
L	603	Inductor	CTF1410
L	604	Inductor-Array	CTF1421
L	605	Inductor-Array	CTF1421
L	606	Inductor-Array	CTF1421
L	607	Inductor-Array	CTF1421
L	608	Inductor	CTF1410
L	901	Coil (DEQ-P9/EW)	CTH1170
T	66	Transformer	CTT1098
T	86	Transformer	CTT1098
X	601	Radiator 10.00MHz	CSS1428
S	601	Switch(RESET)	CSG1059
S	602	Slide Switch(MODE)	CSH1051
EF	901	EMI Filter	CCG1003
EF	902	EMI Filter	CCG1083
EF	903	EMI Filter	CCG1083
EF	904	EMI Filter	CCG1083

=====Circuit Symbol and No.		===Part Name	Part No.
EF	905	EMI Filter	CCG1083
EF	906	EMI Filter	CCG1083

RESISTORS

R	49		RS1/4S751J
R	50		RS1/10S122J
R	51		RS1/10S123J
R	52		RS1/4S751J
R	53		RS1/10S101J
R	54		RN1/10SE1002D
R	55		RN1/10SE3001D
R	56		RS1/10S104J
R	57		RN1/10SE2202D
R	58		RS1/10S474J
R	59		RS1/10S333J
R	60		RS1/10S221J
R	61		RS1/10S221J
R	62		RS1/10S473J
R	63		RS1/10S223J
R	64		RN1/10SE2201D
R	66		RS1/10S122J
R	67		RS1/10S103J
R	68		RS1/4S102J
R	69		RS1/10S101J
R	70		RN1/10SE3002D
R	71		RN1/10SE6201D
R	72		RS1/4S102J
R	73		RN1/10SE1002D
R	74		RN1/10SE1002D
R	75		RS1/10S474J
R	76		RN1/10SE9101D
R	77		RN1/10SE1502D
R	78		RN1/10SE2702D
R	80		RN1/10SE1002D
R	81		RN1/10SE1002D
R	82		RN1/10SE4301D
R	86		RS1/10S122J
R	87		RS1/10S103J
R	88		RS1/4S102J
R	89		RS1/10S101J
R	90		RN1/10SE3002D
R	91		RN1/10SE4301D
R	92		RN1/10SE2401D
R	93		RS1/4S102J
R	101		RN1/10SE1002D
R	102		RN1/10SE1002D
R	103		RN1/10SE1201D
R	104		RN1/10SE1201D
R	105		RN1/10SE2201D
R	106		RN1/10SE2201D
R	107		RN1/10SE4700D
R	108		RS1/16S103J
R	109		RS1/16S103J
R	110		RN1/10SE4700D
R	111		RN1/10SE4700D
R	112		RN1/10SE4700D
R	113		RS1/16S103J
R	114		RS1/16S103J
R	115		RN1/10SE2202D
R	116		RN1/10SE2202D
R	201		RN1/10SE1002D
R	202		RN1/10SE1002D
R	203		RN1/10SE1201D
R	204		RN1/10SE1201D
R	205		RN1/10SE2201D
R	206		RN1/10SE2201D
R	207		RN1/10SE4700D
R	208		RN1/10SE4700D
R	209		RS1/16S103J

=====Circuit Symbol and No.		===Part Name	Part No.
R	210		RS1/16S103J
R	211		RN1/10SE4700D
R	212		RN1/10SE4700D
R	213		RS1/16S103J
R	214		RS1/16S103J
R	215		RN1/10SE2202D
R	216		RN1/10SE2202D
R	301		RN1/10SE1002D
R	302		RN1/10SE1002D
R	303		RN1/10SE1201D
R	304		RN1/10SE1201D
R	305		RN1/10SE2201D
R	306		RN1/10SE2201D
R	307		RS1/16S103J
R	308		RS1/16S103J
R	309		RN1/10SE4700D
R	310		RN1/10SE4700D
R	311		RN1/10SE4700D
R	312		RN1/10SE4700D
R	313		RS1/16S103J
R	314		RS1/16S103J
R	315		RN1/10SE2202D
R	316		RN1/10SE2202D
R	401		RN1/10SE1002D
R	402		RN1/10SE1002D
R	403		RN1/10SE1002D
R	404		RN1/10SE1002D
R	405		RN1/10SE1202D
R	406		RN1/10SE1202D
R	407		RS1/16S103J
R	408		RS1/16S103J
R	409		RN1/10SE4700D
R	410		RN1/10SE4700D
R	411		RN1/10SE4700D
R	412		RN1/10SE4700D
R	413		RS1/16S103J
R	414		RS1/16S103J
R	415		RN1/10SE2202D
R	416		RN1/10SE2202D
R	501		RS1/16S682J
R	502		RS1/16S103J
R	503		RS1/16S103J
R	504		RS1/16S153J
R	602		RS1/16S472J
R	603		RS1/16S101J
R	605		RS1/16S101J
R	606		RS1/16S102J
R	607		RS1/10S103J
R	608		RS1/16S103J
R	609		RS1/10S472J
R	610		RS1/16S102J
R	611		RS1/10S472J
R	612		RS1/10S103J
R	613		RS1/16S473J
R	614		RS1/16S473J
R	615		RS1/16S473J
R	616		RS1/16S102J
R	617		RAB4C471J
R	618		RS1/16S473J
R	620		RS1/16S473J
R	621		RAB4C473J
R	622		RS1/16S473J
R	623		RS1/16S102J
R	624		RS1/16S822J
R	625		RS1/16S473J

=====Circuit Symbol and No.		===Part Name	Part No.
R	626		RS1/16S103J
R	627		RS1/16S103J
R	628		RS1/16S103J
R	629		RS1/16S222J
R	630		RS1/16S473J
R	631		RS1/16S103J
R	632		RS1/16S473J
R	633		RS1/16S101J
R	634		RS1/16S473J
R	635		RS1/16S473J
R	636		RS1/16S104J
R	637		RS1/16S473J
R	638		RS1/16S473J
R	639		RS1/16S222J
R	640		RS1/16S472J
R	641		RS1/16S473J
R	642		RS1/16S473J
R	644		RS1/16S103J
R	901		RS1/16S102J
R	902		RS1/16S223J
R	903		RS1/16S103J
R	904		RS1/16S473J
R	905		RS1/16S473J
R	906		RD1/4PU222J
R	907		RS1/16S473J
R	908		RS1/16S102J
R	909		RAB4C102J
R	910		RAB4C102J

CAPACITORS

C	50		CEHAZL680M16
C	52		CEHAZL680M16
C	54		CCSRCH331J50
C	55		CKSRYB102K50
C	56		CEHAZL680M16
C	58		CEHAZL680M16
C	59		CKSRYB102K50
C	60		CKSRYB473K25
C	61		CKSRYB102K50
C	62		CKSRYB104K25
C	66		CEHAZL680M16
C	68		CEHAZL680M16
C	70		CKSRYB102K50
C	71		CKSRYB102K50
C	72		CEHAZL680M16
C	73		CEHAZL680M16
C	74		CEHAZL680M16
C	75		CKSRYB102K50
C	76		CKSRYB222K50
C	77		CKSRYB223K25
C	78		CCSRCH221J50
C	79		CKSRYB104K25
C	80		CKSRYB102K50
C	81		CKSRYB102K50
C	82		CEHAS1R0M50
C	86		CEHAZL680M16
C	88		CEHAZL680M16
C	90		CKSRYB102K50
C	91		CKSRYB102K50
C	92		CEHAZL680M16
C	93		CEHAZL680M16
C	94		CEHAZL680M16
C	95		CKSRYB102K50
C	97		CKSRYB223K25
C	101		CFHSQ221J50

=====Circuit Symbol and No.		===Part Name	Part No.
C	102		CFHSQ221J50
C	103	10µF/16V	CCH1396
C	104	10µF/16V	CCH1396
C	105		CCSRCH471J50
C	106		CCSRCH471J50
C	107	10µF/16V	CCH1396
C	109	10µF/16V	CCH1396
C	111		CKSRYB104K25
C	112		CKSRYB104K25
C	201		CFHSQ221J50
C	202		CFHSQ221J50
C	203	10µF/16V	CCH1396
C	204	10µF/16V	CCH1396
C	205		CCSRCH471J50
C	206		CCSRCH471J50
C	207	10µF/16V	CCH1396
C	208	10µF/16V	CCH1396
C	211		CKSRYB104K25
C	212		CKSRYB104K25
C	301		CFHSQ221J50
C	302		CFHSQ221J50
C	303	10µF/16V	CCH1396
C	304	10µF/16V	CCH1396
C	305		CCSRCH471J50
C	306		CCSRCH471J50
C	307	10µF/16V	CCH1396
C	308	10µF/16V	CCH1396
C	311		CKSRYB104K25
C	312		CKSRYB104K25
C	401		CFHSQ221J50
C	402		CFHSQ221J50
C	403	10µF/16V	CCH1396
C	404	10µF/16V	CCH1396
C	405		CCSRCH471J50
C	406		CCSRCH471J50
C	407	10µF/16V	CCH1396
C	408	10µF/16V	CCH1396
C	411		CKSRYB104K25
C	412		CKSRYB104K25
C	501	100µF/16V	CCH1353
C	502		CKSRYB104K25
C	503	4R7µF/35V	CCH1358
C	504	4R7µF/35V	CCH1358
C	505	4R7µF/35V	CCH1358
C	506	4R7µF/35V	CCH1358
C	507	4R7µF/35V	CCH1358
C	508	4R7µF/35V	CCH1358
C	509		CKSRYB104K25
C	510		CEJQ100M16
C	511		CEJQ100M16
C	512	4R7µF/35V	CCH1358
C	513	4R7µF/35V	CCH1358
C	514	47µF/25V	CCH1394
C	515		CKSRYB104K25
C	516	47µF/25V	CCH1394
C	517		CKSRYB104K25
C	518	47µF/25V	CCH1394
C	601		CKSRYB104K25
C	602		CKSRYB104K25
C	603		CKSRYB473K25
C	604		CCSRCH101J50
C	605		CCSRCH101J50
C	606		CEJQ2R2M50
C	607		CKSRYB104K25
C	608		CCSRCH101J50

=====Circuit Symbol and No.		===Part Name	Part No.
C	609		CEJQ470M16
C	901	47µF/25V	CCH1394
C	902		CKSRYB473K25
C	903		CEJQ470M10
C	904	100µF/16V	CCH1353
C	905	100µF/16V	CCH1353
C	906	0.47F/5.5V	CCL1016
C	907		CEJQ101M6R3
C	908		CKSRYB473K25
C	909		CEJQ470M16
C	910		CEJQ470M16
C	911		CKSRYB473K25
C	912		CKSRYB104K25
C	913	4700µF/16V	CCH1266
C	914		CKSRYB103K50
C	915	100µF/16V	CCH1395
C	916		CKSRYB223K50
C	917		CCSQCH101J50

B Unit Number : CWX2519(DEQ-P9/UC)
Unit Number : CWX2520(DEQ-P9/EW)
Unit Name : DSP Unit

MISCELLANEOUS

IC	1000	IC	LC89055WHS-RA8
IC	1002	IC	TC7W34FU
IC	1003	IC	TC7W34FU
IC	1004	IC	TC7W34FU
IC	1005	IC	TC7W34FU
IC	1006	IC	TC7W34FU
IC	1100	IC	TC9331F
IC	1101	IC	TC9331F
IC	1102	IC	TC9331F
IC	1104	IC	IS62C1024L-70QI
IC	1105	IC	IS62C1024L-70QI
IC	1300	IC	SM5847AF
IC	1310	IC	PCM1704U-J
IC	1311	IC	PCM1704U-J
IC	1313	IC	OPA2134UA
IC	1400	IC	PD7010A1
IC	1410	IC	PCM1704U-J
IC	1411	IC	PCM1704U-J
IC	1413	IC	OPA2134UA
IC	1500	IC	SM5847AF
IC	1510	IC	PCM1704U-J
IC	1511	IC	PCM1704U-J
IC	1513	IC	OPA2134UA
IC	1600	IC	PCM1716E-3
Q	1000	Transistor	2SC2712
Q	1700	Chip Transistor	2SC2712
Q	1701	Chip Transistor	2SC2712
Q	1702	Transistor	DTC144TK
Q	1703	Transistor	DTC144TK
D	1000	Diode	MA111
D	1001	Diode Network	DA204U
D	1002	Diode Network	DA204U
D	1100	Diode	MA152WK
D	1300	Diode Network	DA204U
D	1301	Diode Network	DA204U
D	1310	Diode Network	DA204U
D	1311	Diode Network	DA204U
D	1312	Diode Network	DA204U
D	1313	Diode Network	DA204U
D	1400	Diode Network	DA204U

=====Circuit Symbol and No.		===Part Name	Part No.
D	1401	Diode Network	DA204U
D	1402	Diode	MA111
D	1410	Diode Network	DA204U
D	1411	Diode Network	DA204U
D	1412	Diode Network	DA204U
D	1413	Diode Network	DA204U
D	1500	Diode Network	DA204U
D	1501	Diode Network	DA204U
D	1510	Diode Network	DA204U
D	1511	Diode Network	DA204U
D	1512	Diode Network	DA204U
D	1513	Diode Network	DA204U
D	1600	Diode Network	DA204U
D	1601	Diode Network	DA204U
D	1700	Diode	MA111
L	1000	Inductor	CTF1295
L	1002	Inductor	LCTA1R0J4532
L	1003	Inductor	LCTA1R0J4532
L	1004	Inductor	CTF1306
L	1005	Inductor	CTF1306
L	1006	Inductor	CTF1306
L	1007	Inductor	CTF1306
L	1008	Inductor	CTF1306
L	1100	Inductor	CTF1295
L	1101	Inductor	CTF1295
L	1102	Inductor	CTF1295
L	1103	Inductor	CTF1295
L	1104	Inductor	CTF1295
L	1105	Inductor-Array	CTF1421
L	1106	Inductor-Array	CTF1421
L	1107	Inductor-Array	CTF1421
L	1108	Inductor-Array	CTF1421
L	1109	Inductor-Array	CTF1421
L	1110	Inductor-Array	CTF1421
L	1111	Inductor	CTF1306
L	1112	Inductor	CTF1306
L	1113	Inductor-Array	CTF1421
L	1114	Inductor-Array	CTF1421
L	1115	Inductor-Array	CTF1421
L	1116	Inductor-Array	CTF1421
L	1117	Inductor-Array	CTF1421
L	1118	Inductor-Array	CTF1421
L	1300	Inductor	CTF1295
L	1310	Inductor	CTF1295
L	1311	Inductor	CTF1295
L	1312	Inductor	CTF1295
L	1313	Inductor	CTF1295
L	1314	Inductor	CTF1295
L	1315	Inductor (DEQ-P9/EW)	CTF1295
L	1316	Inductor (DEQ-P9/EW)	CTF1295
L	1400	Inductor	LCTA1R0J4532
L	1410	Inductor	CTF1295
L	1411	Inductor	CTF1295
L	1412	Inductor	CTF1295
L	1413	Inductor	CTF1295
L	1414	Inductor	CTF1295
L	1415	Inductor (DEQ-P9/EW)	CTF1295
L	1416	Inductor (DEQ-P9/EW)	CTF1295
L	1500	Inductor	CTF1295
L	1510	Inductor	CTF1295
L	1511	Inductor	CTF1295
L	1512	Inductor	CTF1295
L	1513	Inductor	CTF1295
L	1514	Inductor	CTF1295
L	1515	Inductor (DEQ-P9/EW)	CTF1295

=====Circuit Symbol and No.		===Part Name	Part No.
L	1516	Inductor (DEQ-P9/EW)	CTF1295
L	1600	Inductor	CTF1295
L	1601	Inductor	CTF1295
L	1602	Inductor (DEQ-P9/EW)	CTF1295
L	1603	Inductor (DEQ-P9/EW)	CTF1295
L	1700	Inductor	CTF1306
L	1701	Inductor	CTF1306
L	1702	Inductor-Array	CTF1421
L	1703	Inductor-Array	CTF1421
L	1704	Inductor-Array	CTF1421
L	1705	Inductor-Array	CTF1421
L	1706	Inductor	CTF1250
X	1000	Crystal Resonator 12.288MHz	CSS1416
X	1100	Crystal Resonator 32.0MHz	CSS1360
X	1101	Crystal Resonator 32.0MHz	CSS1360
X	1102	Crystal Resonator 32.0MHz	CSS1360
EF	1700	EMI Filter	CCG1030
EF	1701	EMI Filter	CCG1030
EF	1702	EMI Filter	CCG1030
EF	1703	EMI Filter	CCG1030

RESISTORS

R	1000		RS1/16S103J
R	1003		RN1/10SE1001D
R	1007		RN1/10SE1001D
R	1008		RN1/10SE4702D
R	1011		RN1/10SE1002D
R	1012		RN1/10SE1001D
R	1016		RN1/10SE5101D
R	1017		RN1/10SE4700D
R	1018		RN1/10SE7501D
R	1019		RN1/10SC75R0D
R	1021		RS1/16S471J
R	1022		RAB4C101J
R	1023		RS1/16S105J
R	1024		RN1/10SE1000D
R	1025		RN1/10SE1000D
R	1026		RN1/10SE2200D
R	1027		RN1/10SE1000D
R	1028		RN1/10SE2200D
R	1029		RN1/10SE1000D
R	1030		RN1/10SE1000D
R	1033		RN1/10SE1200D
R	1038		RN1/10SE1000D
R	1041		RN1/10SE2200D
R	1042		RN1/10SE2200D
R	1043		RN1/10SE1000D
R	1044		RN1/10SE1200D
R	1100		RAB4C471J
R	1105		RAB4C471J
R	1106		RAB4C473J
R	1107		RS1/16S105J
R	1108		RS1/16S331J
R	1109		RS1/16S0R0J
R	1110		RS1/16S0R0J
R	1111		RS1/16S0R0J
R	1112		RS1/16S0R0J
R	1113		RS1/16S0R0J
R	1114		RAB4C471J
R	1115		RAB4C471J
R	1116		RAB4C471J
R	1117		RAB4C471J
R	1118		RAB4C473J
R	1119		RAB4C473J
R	1120		RS1/16S105J
R	1121		RS1/16S105J
R	1122		RS1/16S331J

=====Circuit Symbol and No.		===Part Name	Part No.
R	1123		RS1/16S331J
R	1124		RS1/16S0R0J
R	1125		RS1/16S0R0J
R	1126		RS1/16S0R0J
R	1127		RS1/16S0R0J
R	1128		RS1/16S0R0J
R	1129		RS1/16S0R0J
R	1130		RAB4C473J
R	1133		RAB4C473J
R	1134		RS1/16S0R0J
R	1135		RS1/16S0R0J
R	1136		RS1/16S0R0J
R	1137		RS1/16S0R0J
R	1138		RS1/16S0R0J
R	1139		RS1/16S0R0J
R	1140		RS1/16S0R0J
R	1141		RS1/16S0R0J
R	1142		RS1/16S0R0J
R	1143		RS1/16S0R0J
R	1300		RAB4C101J
R	1301		RS1/16S820J
R	1302		RS1/16S0R0J
R	1303		RS1/16S102J
R	1310		RAB4C470J
R	1311		RAB4C470J
R	1312		RN1/10SE1801D
R	1313		RN1/10SE1801D
R	1314		RN1/10SE2200D
R	1315		RN1/10SE2200D
R	1316		RN1/10SE4701D
R	1317		RN1/10SE4701D
R	1318	(DEQ-P9/UC)	RS1/10S0R0J
R	1319	(DEQ-P9/UC)	RS1/10S0R0J
R	1400		RS1/16S0R0J
R	1401		RS1/16S0R0J
R	1402		RS1/16S102J
R	1403		RAB4C101J
R	1410		RAB4C470J
R	1411		RAB4C470J
R	1412		RN1/10SE1801D
R	1413		RN1/10SE1801D
R	1414		RN1/10SE2200D
R	1415		RN1/10SE2200D
R	1416		RN1/10SE4701D
R	1417		RN1/10SE4701D
R	1418	(DEQ-P9/UC)	RS1/10S0R0J
R	1419	(DEQ-P9/UC)	RS1/10S0R0J
R	1500		RS1/16S101J
R	1502		RAB4C101J
R	1503		RS1/16S0R0J
R	1504		RS1/16S102J
R	1510		RAB4C470J
R	1511		RAB4C470J
R	1512		RN1/10SE1801D
R	1513		RN1/10SE1801D
R	1514		RN1/10SE2200D
R	1515		RN1/10SE2200D
R	1516		RN1/10SE4701D
R	1517		RN1/10SE4701D
R	1518	(DEQ-P9/UC)	RS1/10S0R0J
R	1519	(DEQ-P9/UC)	RS1/10S0R0J
R	1600		RAB4C101J
R	1601		RS1/16S0R0J
R	1602		RS1/16S102J
R	1603		RS1/16S102J

=====Circuit Symbol and No.		===Part Name	Part No.
R	1610		RN1/10SE2200D
R	1611		RN1/10SE2200D
R	1612		RN1/10SE4701D
R	1613		RN1/10SE4701D
R	1614	(DEQ-P9/UC)	RS1/10S0R0J
R	1615	(DEQ-P9/UC)	RS1/10S0R0J
R	1700		RAB4C473J
R	1703		RS1/16S103J
R	1704		RS1/16S103J
R	1705		RS1/16S102J
R	1706		RS1/16S473J
R	1707		RS1/16S472J

CAPACITORS

C	1000		CKSRYB104K25
C	1010		CKSRYB103K50
C	1011		CKSRYB104K25
C	1012		CKSRYB104K25
C	1013		CFHSQ103J16
C	1014		CFHSP104J16
C	1015		CFHSP104J16
C	1017		CFHSQ103J16
C	1018		CKSRYB104K25
C	1019		CKSRYB473K25
C	1020		CKSRYB473K25
C	1021		CEZA100M16
C	1022		CEZA100M16
C	1023		CCSRCH270J50
C	1024		CKSRYB473K25
C	1025		CKSRYB473K25
C	1026		CEZA470M10
C	1027		CCSRCH330J50
C	1028		CEZA470M10
C	1029		CKSRYB473K25
C	1030		CKSRYB473K25
C	1043		CKSRYB473K25
C	1044		CKSRYB473K25
C	1045		CKSRYB473K25
C	1046		CKSRYB473K25
C	1047		CKSRYB473K25
C	1048		CKSRYB473K25
C	1049		CKSRYB473K25
C	1050		CKSRYB473K25
C	1103		CKSRYB473K25
C	1104		CCSRCH100D50
C	1107		CEJQ470M6R3
C	1108		CCSRCH100D50
C	1109		CKSRYB473K25
C	1110		CKSRYB102K50
C	1112		CKSRYB473K25
C	1114		CKSRYB473K25
C	1119		CKSRYB473K25
C	1120		CKSRYB473K25
C	1121		CCSRCH100D50
C	1122		CKSRYB473K25
C	1123		CKSRYB473K25
C	1124		CCSRCH100D50
C	1125		CEJQ100M16
C	1126		CEJQ470M6R3
C	1127		CCSRCH100D50
C	1128		CEJQ100M16
C	1129		CEJQ470M6R3
C	1130		CCSRCH100D50
C	1132		CKSRYB473K25

=====Circuit Symbol and No.		===Part Name	Part No.
C	1134		CKSRYB473K25
C	1136		CKSRYB102K50
C	1138		CKSRYB473K25
C	1140		CKSRYB473K25
C	1141		CKSRYB102K50
C	1142		CKSRYB473K25
C	1143		CKSRYB473K25
C	1144		CKSRYB473K25
C	1146		CKSRYB473K25
C	1300		CKSRYB104K25
C	1301		CKSRYB104K25
C	1302		CKSRYB104K25
C	1303		CCSRCH331J50
C	1304		CKSRYB104K25
C	1305		CKSRYB104K25
C	1306		CEZA330M16
C	1307		CKSRYB473K25
C	1308		CKSRYB104K25
C	1309		CKSRYB473K25
C	1310		CASA220M10
C	1311		CASA220M10
C	1312		CASA220M10
C	1313		CASA220M10
C	1314		CKSRYB104K25
C	1315		CKSRYB104K25
C	1316		CKSRYB104K25
C	1317		CKSRYB104K25
C	1318		CEZA220M25
C	1319		CEZA220M25
C	1320		CEZA101M10
C	1321		CEZA101M10
C	1322		CKSRYB104K25
C	1323		CKSRYB104K25
C	1324		CEZA470M10
C	1325		CEZA470M10
C	1326		CKSRYB104K25
C	1327		CKSRYB104K25
C	1328		CEZA470M10
C	1329		CEZA470M10
C	1330		CEZA470M10
C	1331		CEZA470M10
C	1332		CKSRYB104K25
C	1333		CKSRYB104K25
C	1334	10µF/16V	CCH1352
C	1335	10µF/16V	CCH1352
C	1336		CFHSQ331J50
C	1337		CFHSQ331J50
C	1338		CFHSQ332J16
C	1339		CFHSQ332J16
C	1400		CCSRCH331J50
C	1401		CEZA330M16
C	1402		CKSRYB473K25
C	1405		CKSRYB473K25
C	1410		CASA220M10
C	1411		CASA220M10
C	1412		CASA220M10
C	1413		CASA220M10
C	1414		CKSRYB104K25
C	1415		CKSRYB104K25
C	1416		CKSRYB104K25
C	1417		CKSRYB104K25
C	1418		CEZA220M25
C	1419		CEZA220M25
C	1420		CEZA101M10
C	1421		CEZA101M10

=====Circuit Symbol and No.		===Part Name	Part No.
C	1422		CKSRYB104K25
C	1423		CKSRYB104K25
C	1424		CEZA470M10
C	1425		CEZA470M10
C	1426		CKSRYB104K25
C	1427		CKSRYB104K25
C	1428		CEZA470M10
C	1429		CEZA470M10
C	1430		CEZA470M10
C	1431		CEZA470M10
C	1432		CKSRYB104K25
C	1433		CKSRYB104K25
C	1434	10µF/16V	CCH1352
C	1435	10µF/16V	CCH1352
C	1436		CFHSQ331J50
C	1437		CFHSQ331J50
C	1438		CFHSQ332J16
C	1439		CFHSQ332J16
C	1500		CKSRYB104K25
C	1501		CKSRYB104K25
C	1502		CKSRYB104K25
C	1503		CCSRCH331J50
C	1504		CKSRYB104K25
C	1505		CKSRYB104K25
C	1506		CEZA330M16
C	1507		CKSRYB473K25
C	1508		CKSRYB473K25
C	1509		CKSRYB104K25
C	1510		CASA220M10
C	1511		CASA220M10
C	1512		CASA220M10
C	1513		CASA220M10
C	1514		CKSRYB104K25
C	1515		CKSRYB104K25
C	1516		CKSRYB104K25
C	1517		CKSRYB104K25
C	1518		CEZA220M25
C	1519		CEZA220M25
C	1520		CEZA101M10
C	1521		CEZA101M10

=====Circuit Symbol and No.		===Part Name	Part No.
C	1522		CKSRYB104K25
C	1523		CKSRYB104K25
C	1524		CEZA470M10
C	1525		CEZA470M10
C	1526		CKSRYB104K25
C	1527		CKSRYB104K25
C	1528		CEZA470M10
C	1529		CEZA470M10
C	1530		CEZA470M10
C	1531		CEZA470M10
C	1532		CKSRYB104K25
C	1533		CKSRYB104K25
C	1534	10µF/16V	CCH1352
C	1535	10µF/16V	CCH1352
C	1536		CFHSQ331J50
C	1537		CFHSQ331J50
C	1538		CFHSQ332J16
C	1539		CFHSQ332J16
C	1600		CKSRYB104K25
C	1601		CEZA100M16
C	1602		CKSRYB104K25
C	1603		CEZA100M16
C	1604		CEZA100M16
C	1605		CKSRYB104K25
C	1606		CEZA100M16
C	1607		CEZA100M16
C	1608		CEZA100M16
C	1609		CKSRYB104K25
C	1610		CCSRCH331J50
C	1611	10µF/16V	CCH1396
C	1612	10µF/16V	CCH1396
C	1613		CFHSQ103J16
C	1614		CFHSQ103J16
C	1700	47µF/25V	CCH1394
C	1701	47µF/25V	CCH1394

6. ADJUSTMENT

There is no information to be shown in this chapter.

7. GENERAL INFORMATION

7.1 DIAGNOSIS

7.1.1 DISASSEMBLY

● **Removing the Case (Fig.1)**

1 Remove the eleven screws and then remove the Case.

Fig.1

● **Removing the DSP Section (Fig.2)**

1 Remove the four screws.

Disconnect the connector and then remove the DSP Section.

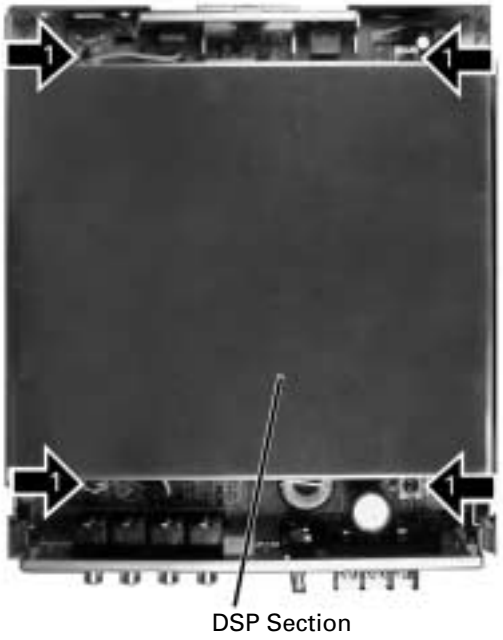


Fig.2

● **Removing the DSP Unit (Fig.3)**

1 After solder is removed, straight the tabs at five locations indicated and then remove the DSP Unit.

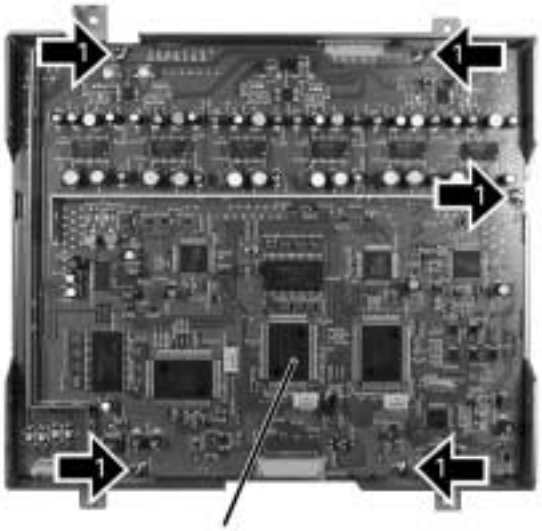


Fig.3

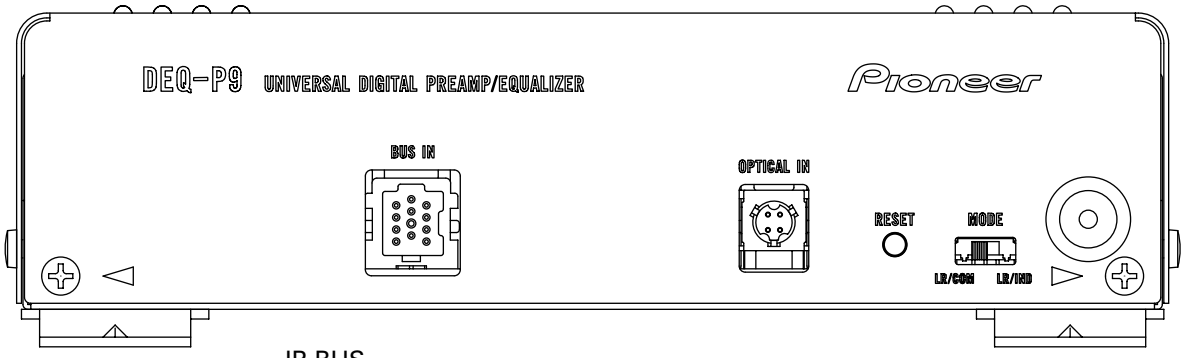
● **Removing the Audio Control Unit (Fig.4)**

1 Remove the three screws.

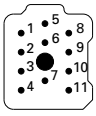
2 Straight the tabs at five locations indicated and then remove the Audio Control Unit.

Fig.4

7.1.2 CONNECTOR FUNCTION DESCRIPTION



IP-BUS INPUT



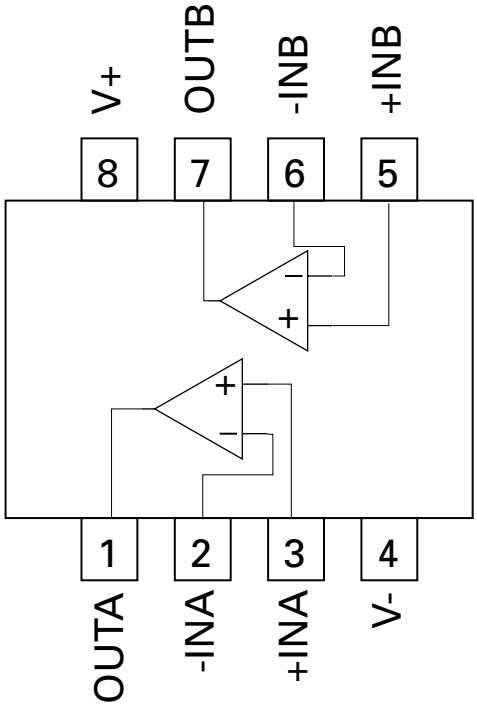
1. BUS+
2. GND
3. GND
4. NC
5. BUS-
6. GND
7. BUS L+ INPUT
8. ASENB
9. BUS R+ INPUT
10. BUS R- INPUT
11. BUS L- INPUT

OPTICAL INPUT

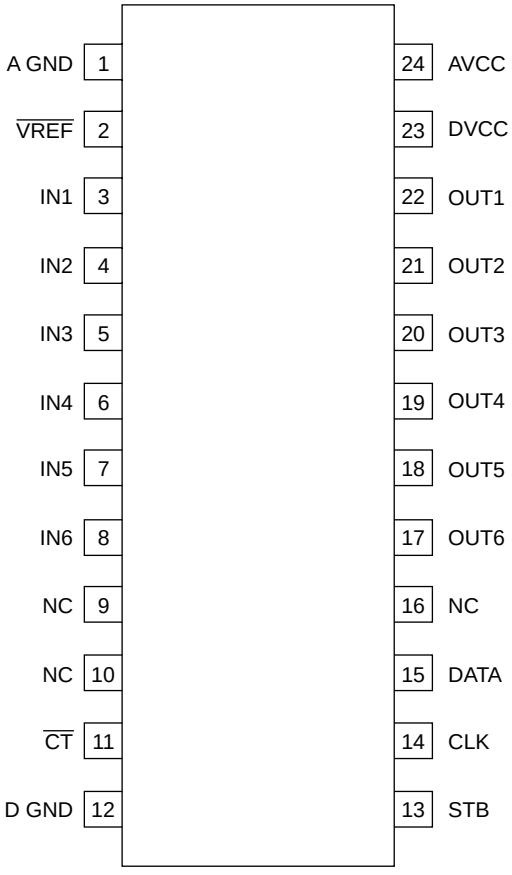
1. GND
2. GND
3. NC
4. OPTOUT

7.2 IC

OPA2134UA

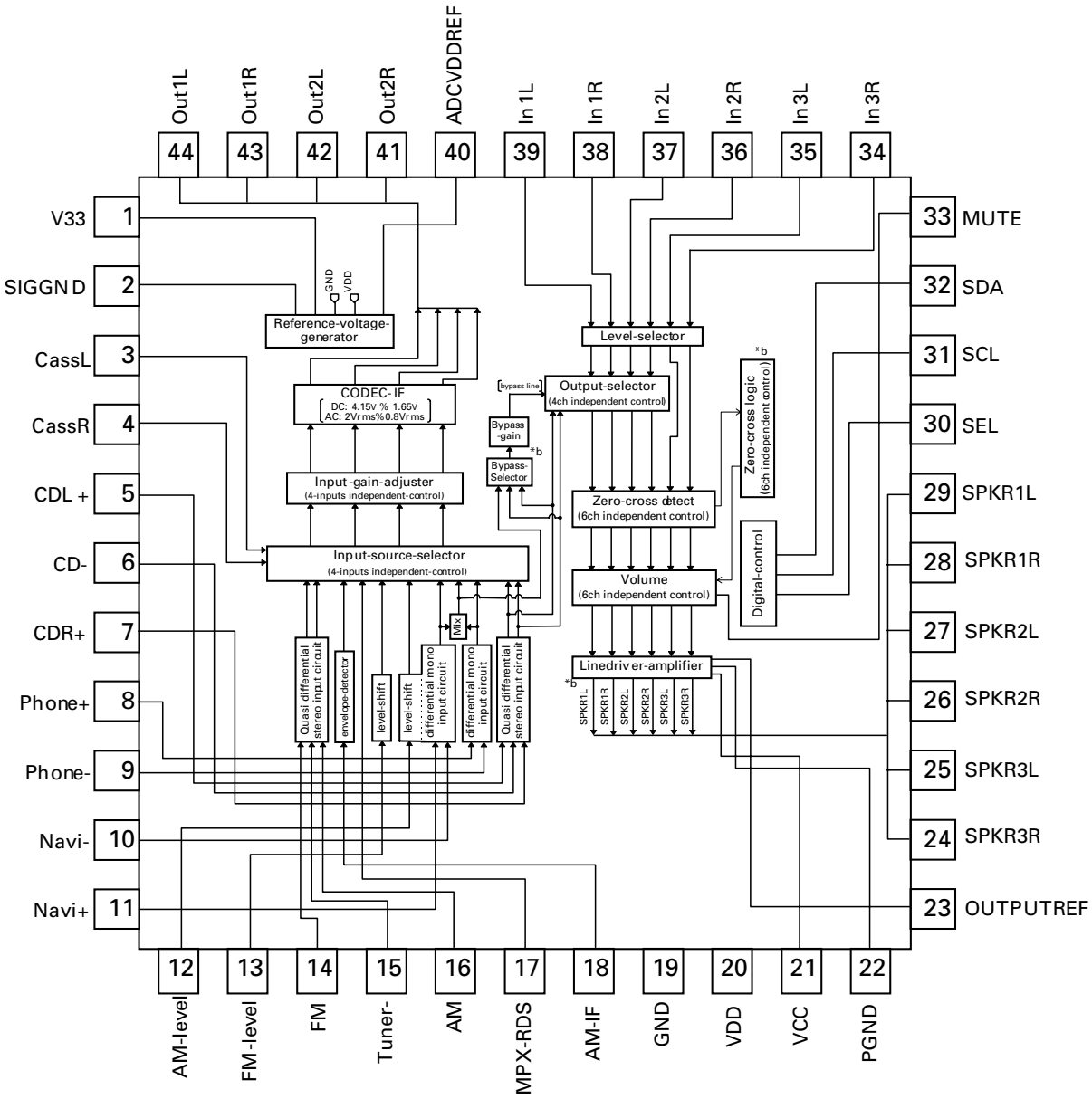


* PM0017AM

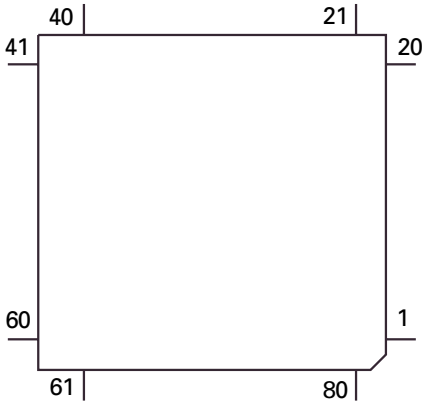


IC's marked by * are MOS type.
Be careful in handling them because they are very liable to be damaged by electrostatic induction.

PML011A



* PD5653A



● **Pin Functions(PD5653A)**

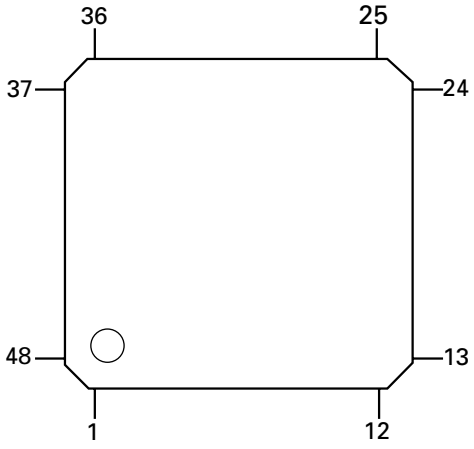
Pin No.	Pin Name	I/O	Format	Function and Operation
1	DFCK	O	C	DF serial clock output
2	VST1	O	C	EVOL strobe output 1(H/M/L)
3	VST2	O	C	EVOL strobe output 2(SW)
4	VDT	O	C	EVOL data output(47k = P.DN)
5	VCK	O	C	EVOL serial clock output
6	CNVSS	I		Vss connection
7, 8	NC			Not used
9	$\overline{\text{RESET}}$	I		Microcomputer hard reset input
10	XOUT	O		System clock output
11	VSS	I		GND
12	XIN	I		System clock input
13	VCC	I		Microcomputer power supply 5V
14	$\overline{\text{NMI}}$	I	C	Vcc connection(1k microcomputer power supply = P.UP)
15	$\overline{\text{BSENS}}$	I	C	B.up sense(47k microcomputer power supply = P.UP)
16	$\overline{\text{ASENSB}}$	I	C	Acc sense(47k microcomputer power supply = P.UP)
17	NC			Not used
18	IPRQ	I	C	IP-BUS request input(47k = P.DN)
19, 20	NC			Not used
21	IPPW	O	C	IP-BUS driver power supply switching output
22	IPIN	I	N	IP-BUS data input(47k = P.DN)
23	IPOUT	O	N	IP-BUS data output
24	DSPOUT	O	C	DSP data output
25	NC			Not used
26	DSPCK	O	C	DSP serial clock output
27-35	NC			Not used
36	LRSW	I		L/R, separation/common data input
37	IFHIZ	I	C	DSP microcomputer port Hi-z setting(47k = P.DN)
38	MUTERQ	O	C	Hard mute request output
39	$\overline{\text{TESTIN}}$	I	C	Test program enable(47k microcomputer power supply = P.UP)
40	DSPPW	O	C	DSP IC power supply switching output
41-60	NC			Not used
61-63	$\overline{\text{DSPCS3-1}}$	O	C	DSP chip select 3-1 output
64	DSPCD	O	C	DSP command/data information output
65	$\overline{\text{DSPERR}}$	I	C	DSP error information input(47k DSP power supply = P.UP)
66	$\overline{\text{DSPACK}}$	I	C	DSP acknowledge input
67	$\overline{\text{DSPRST}}$	O	C	DSP reset output
68	$\overline{\text{DIRRST}}$	O	C	DIR reset output
69-71	DIRFS2-0	I	C	DIR sampling frequency information 2-0 input(47k = P.DN)
72	DIRERR	I	C	DIR lock/unlock information input(47k = P.DN)
73	DIRPCM	I	C	DIR audio/data information input(47k = P.DN)
74	DEMPHIN	I	C	DIR emphasis information input(47k = P.DN)
75	AVSS	I		Vss connection
76	$\overline{\text{DFST}}$	O	C	DF strobe output
77	VREF	I		AD converter reference voltage input(Vcc connection)
78	AVCC	I		Vcc connection
79	NC			Not used
80	DFOUT	O	C	DF data output(47k = P.DN)

I/O Format	Meaning
C	CMOS
N	N channel open drain

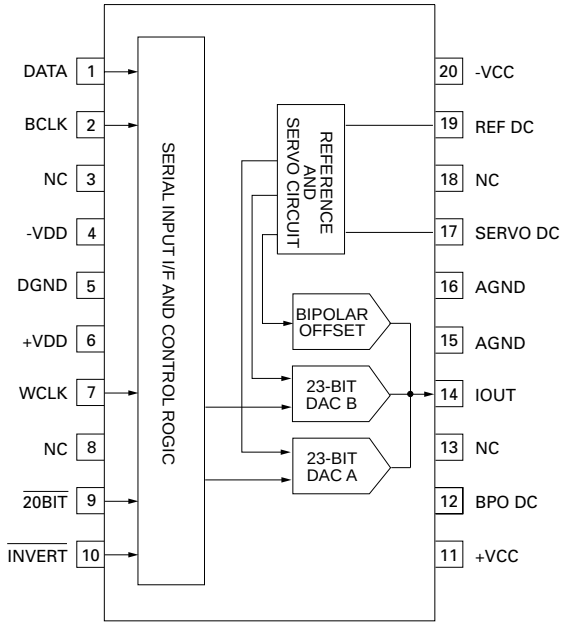
● **Pin Functions(LC89055WHS-RA8)**

Pin No.	Pin Name	I/O	Function and Operation
1	DISEL	I	Data input pin (DIN0,DIN1) select input
2	DOUT	O	Serial audio data output
3	DIN0	I	Digital data input
4	DIN1	I	Digital data input
5	DIN2	I	Digital data input
6	DGND		Digital circuit GND
7	DVDD		Digital VDD(5V)
8	R	I	VCO gain control input
9	VIN	I	VCO free run frequency setting input
10	LPF	O	PLL loop filter setting
11	AVDD		Analog power supply
12	AGND		Analog GND
13	CKOUT	O	Clock output
14	BCK	O	64fs clock output
15	LRCK	O	fs clock output
16	DATAO	O	Data output
17	XSTATE	O	Source clock switching monitor output
18	DGND		Digital GND
19	DVDD		Digital power supply
20	XMCK	O	Crystal oscillator clock output
21	XOUT	O	Crystal oscillator connection output
22	XIN	I	Crystal oscillator connection input
23	EMPHA	O	Channel status emphasis information output
24	AUDIO	O	Channel status bit 1 (Non-PCM data detection bit) output
25	CSFLAG	O	First 40 bits update flag output terminal for channel status
26	F0/P0/C0	O	Input fs calculated signal output/Pc data type output/Input word information output
27	F1/P1/C1	O	Input fs calculated signal output/Pc data type output/Input word information output
28	F2/P2/C2	O	Input fs calculated signal output/Pc data type output/Input word information output
29	VF/P3/C3	O	Validity flag output/Pc data type output/Input word information output
30	DVDD		Digital power supply
31	DGND		Digital GND
32	AUTO	O	Non-PCM burst data transmission detection (Pa, Pb detection) signal output terminal
33	BPSYNC	O	Non-PCM burst preamble Pa, Pb, Pc, Pd sync signal detection terminal
34	ERROR	O	PLL lock error, data error flag output
35	DO	O	Microcomputer IF reading data output
36	DI	I	Microcomputer IF writing data input
37	CE	I	Microcomputer IF chip enable
38	CL	I	Microcomputer IF clock input
39	XSEL	I	XIN Crystal oscillator frequency selection input
40	MODE0	I	Mode setting input
41	MODE1	I	Mode setting input
42	DGND		Digital GND
43	DVDD		Digital power supply
44	DOSEL0	I	Output data format selection input
45	DOSEL1	I	Output data format selection input
46	CKSEL0	I	Output clock selection input
47	CKSEL1	I	Output clock selection input
48	XMODE	I	System reset input

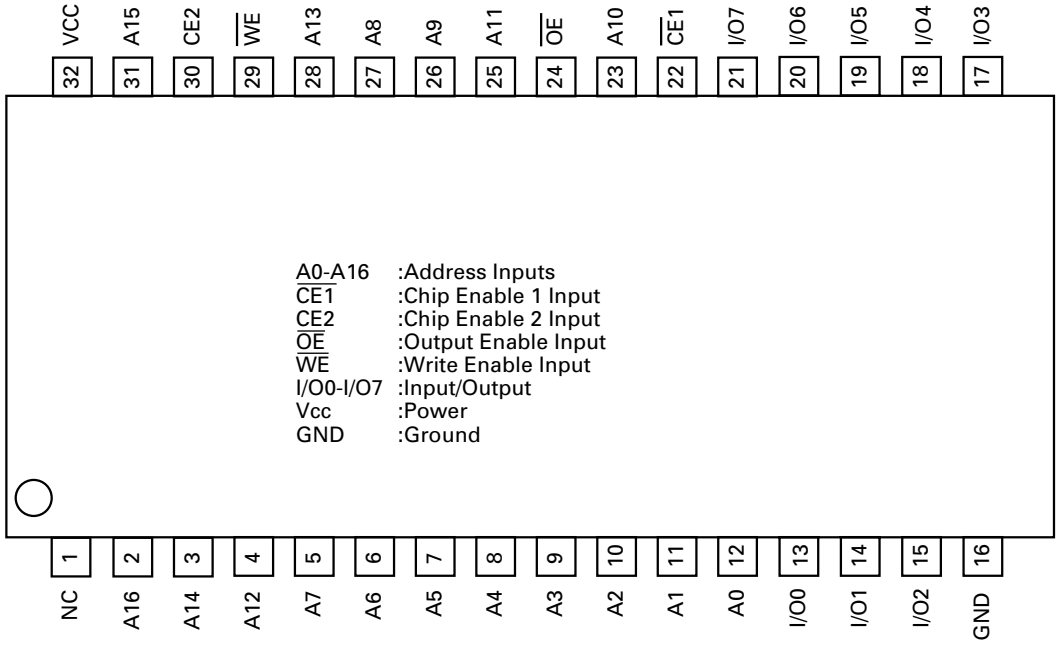
* LC89055WHS-RA8



* PCM1704U-J



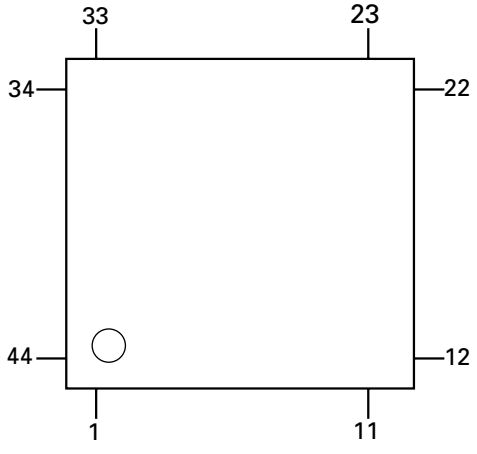
* IS62C1024L-70QI



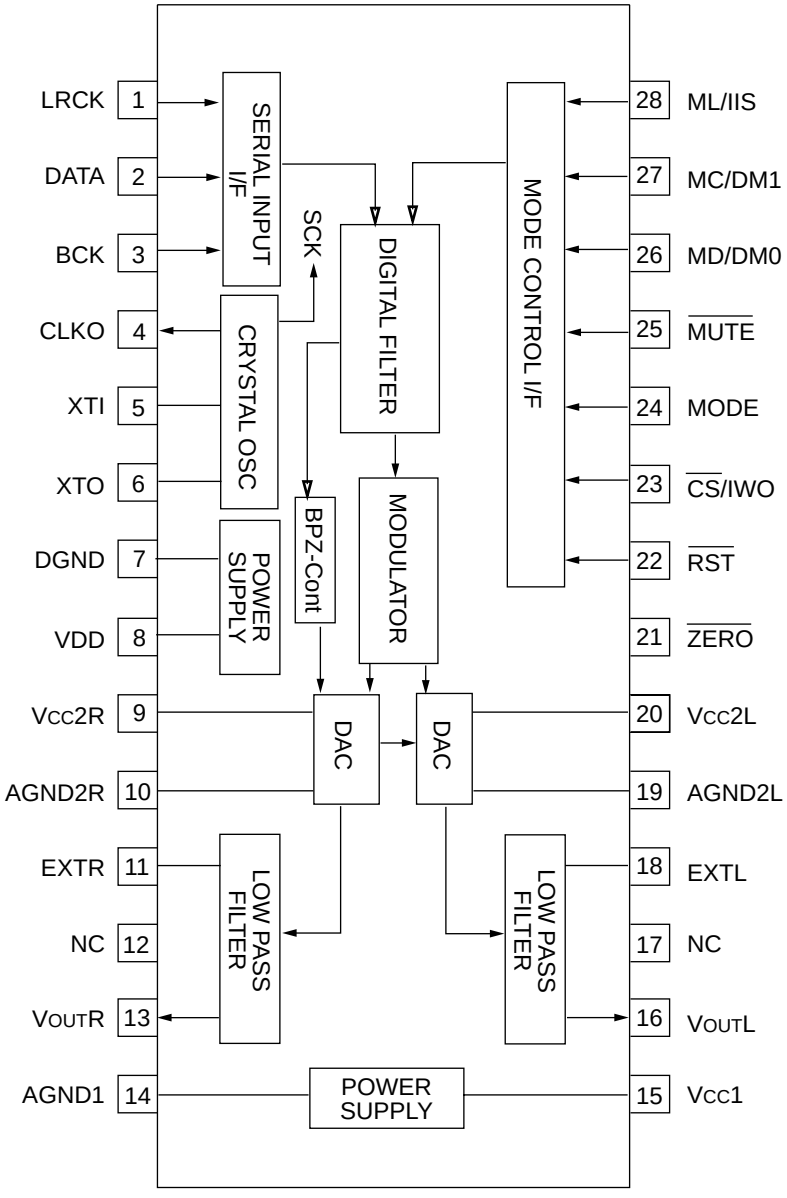
● **Pin Functions(PD7010A1)**

Pin No.	Pin Name	I/O	Function and Operation
1	DITH	I	Dither ON/OFF
2	DITH	I	Dither ON/OFF
3	CKEN	I	Crystal oscillation circuit operation control
4	CKEN	I	Crystal oscillation circuit operation control
5	XTI	I	Oscillation section input
6	XTO	O	Oscillation section output
7	VSS1		Power supply(0V)
8	CKO	O	Oscillation section output clock
9	CKO	O	Oscillation section output clock
10	CKS	I	Master clock input frequency selection
11	CKS	I	Master clock input frequency selection
12	ASEL2/MDCK	I	Operation mode selection/Microcomputer I/F clock input
13	ASEL2/MDCK	I	Operation mode selection/Microcomputer I/F clock input
14	$\overline{HS}$/MDT	I	Operation mode selection/Microcomputer I/F data input
15	$\overline{HS}$/MDT	I	Operation mode selection/Microcomputer I/F data input
16	SYNC/MDLE	I	Synchronous mode selection/Microcomputer I/F latch enable input
17	$\overline{RST}$	I	Reset input
18	LRS	I	LR clock plarity selection
19	DEEM	I	Deemphasis ON/OFF selection
20	DEEM	I	Deemphasis ON/OFF selection
21	AMS1	I	ATT quantity setting
22	AMS1	I	ATT quantity setting
23	AMS2	I	ATT quantity setting
24	AMS2	I	ATT quantity setting
25	OBS	I	Output data bit length selection
26	OBS	I	Output data bit length selection
27	ASEL1	I	Operation mode selection
28	VSS2		Power supply(0V)
29	VDD2		Power supply(+5V)
30	DOR	O	Rch data output
31	DOR	O	Rch data output
32	DOL	O	Lch data output
33	DOL	O	Lch data output
34	WCKO	O	Word clock output
35	WCKO	O	Word clock output
36	BCKO	O	Bit clock output for output data
37	BCKO	O	Bit clock output for output data
38	MDS	I	Mode setting method selection
39	LRCI	I	LR clock input
40	DIN	I	Data input
41	BCKI	I	Bit clock input
42	BCKI	I	Bit clock input
43	VDD1		Power supply(+5V)
44	VDD1		Power supply(+5V)

* PD7010A1



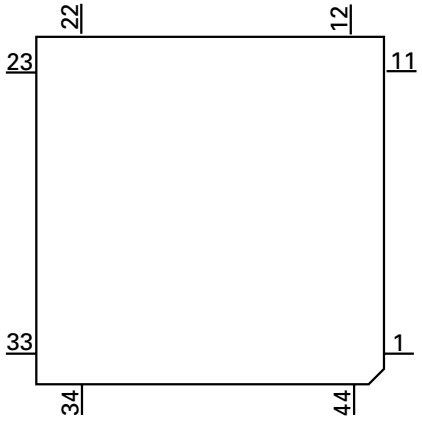
PCM1716E-3


LRCK 1
DATA 2
BCK 3
CLKO 4
XTI 5
XTO 6
DGND 7
VDD 8
Vcc2R 9
AGND2R 10
EXTR 11
NC 12
VOUTR 13
AGND1 14
28 ML/IIS
27 MC/DM1
26 MD/DM0
25 MUTE
24 MODE
23 CS/IWO
22 RST
21 ZERO
20 Vcc2L
19 AGND2L
18 EXTL
17 NC
16 VOUTL
15 Vcc1
SERIAL INPUT I/F
CRYSTAL OSC
POWER SUPPLY
SCK
BPZ-Cont
DIGITAL FILTER
MODULATOR
MODE CONTROL I/F
DAC
DAC
LOW PASS FILTER
LOW PASS FILTER
POWER SUPPLY

● **Pin Functions(SM5847AF)**

Pin No.	Pin Name	I/O	Function and Operation
1	OMD	I	Output data rate(4fs/8fs)select pin
2	DOR	O	Rch data output
3	DOL	O	Lch data output
4	WCKO	O	Word clock output
5	BCOK	O	Bit clock output
6	VSS		GND
7	VSSAC		GND
8	VDDAC		Power supply
9	VDD		Power supply
10	DG	O	Deglitch signal output
11	NC		Not used
12	CKO	O	Master clock output
13	VSS		GND
14	VDD		Power supply
15	XTO	O	Radiator output
16	XTI	I	Radiator input/Master clock input
17	VSS		GND
18	VDD		Power supply
19	LRCI	I	Input data sampling rate clock(fs)input
20	DI/INF2N	I	Data input/Input format select pin
21	BCKI	I	Bit clock input
22,23	NC		Not used
24	CKSLN	I	Master clock frequency(192fs/256fs)select pin
25	INF1N	I	Input format select pin
26	IW1N/DIL	I	Input data word length select pin/Lch data input
27	IW2N/DIR	I	Input data word length select pin/Rch data input
28	VSS		GND
29	VDD		Power supply
30	OW1N	I	Output data word length select pin
31	OW2N	I	Output data word length select pin
32	SYNCN	I	The same mode select pin
33	RSTN	I	Reset input
34	CKDV1	I	The inside system establishment ratio of dividing frequency select pin
35	CKDV2	I	The inside system establishment ratio of dividing frequency select pin
36	DEMPR	I	Rch deemphasis ON/OFF
37	DEMPL	I	Lch deemphasis ON/OFF
38	VDD		Power supply
39	VSS		GND
40	FSEL1	I	Deemphasis filter fs select pin
41	FSEL2	I	Deemphasis filter fs select pin
42	MUTEL	I	Lch mute ON/OFF
43	MUTER	I	Rch mute ON/OFF
44	DITHN	I	Output data dither ON/OFF

* SM5847AF



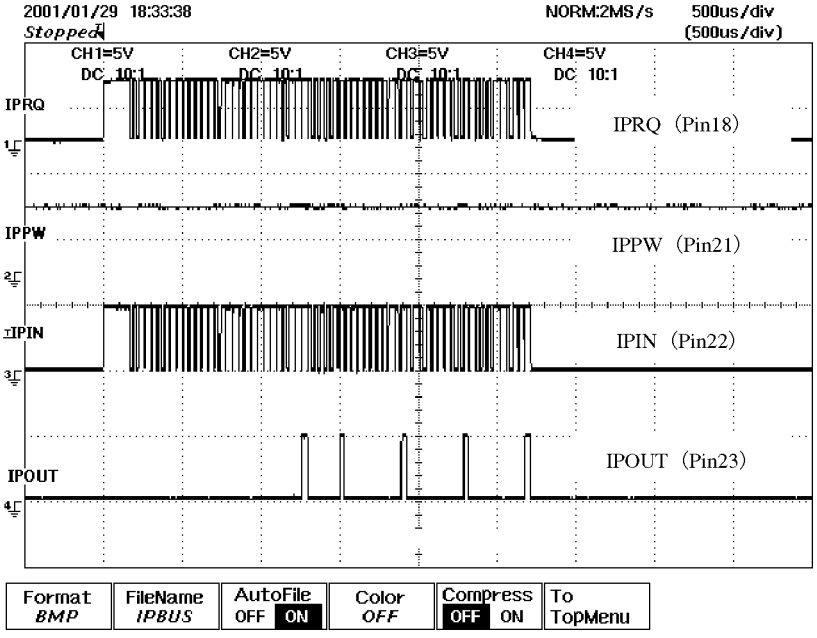
7.3 OPERATIONAL DESCRIPTION

The DSP/DIR/DF/EVOL will be initialized, and the microcomputer will enter a normal operation. All other commands entered by key operations are also received by IP-BUS communications, and DSP/EVOL settings are conducted. For normal operations, the monitoring of the DSP error is conducted by communicating with the DSP at certain intervals.

When DSPPW does not become H

The XOUT(Pin10)/XIN(Pin12) of the microcomputer is not operating.
The microcomputer is in the STOP mode. Please verify the ASENSB (Pin16)/BSENS(Pin15).

IP-BUS Communication



With the IP-BUS communications, communication is conducted in set intervals (a refresh operation is conducted every five seconds), when the Acc and Bup are ON (see figure on the left).
When the IP-BUS communications are not performing properly, the product does not operate properly.

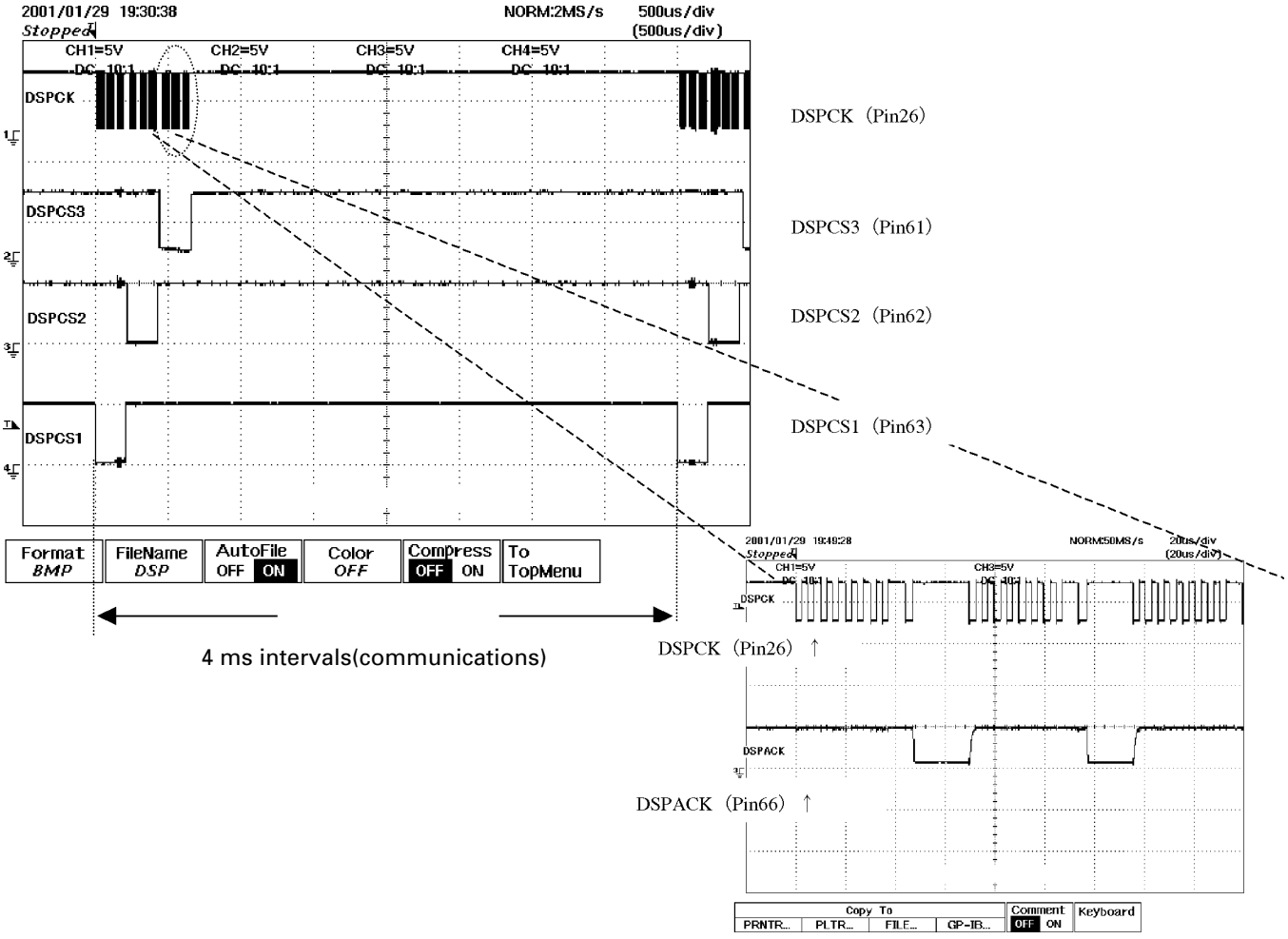
When sound is not emitted

Lock and Unlock of the DIR (DIRERR(Pin72) of the microcomputer)
Fixed to HIGH → Either the digital audio is abnormal, or the DIR IC is abnormal.
Becomes HIGH at certain intervals → The microcomputer is performing re-initialization.

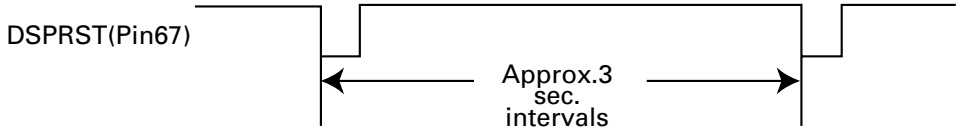
Initialization of the microcomputer
When a DIR error or DSP error is detected, the microcomputer performs re-initialization.
In such circumstances, the DIRRST(Pin68)/DSPRST(Pin67) become LOW (for 4ms) at certain intervals (approximately 3 sec.).

Periodical communications with DSP

DSP error verification(under normal conditions)



DSP error verification(under continued abnormal conditions)

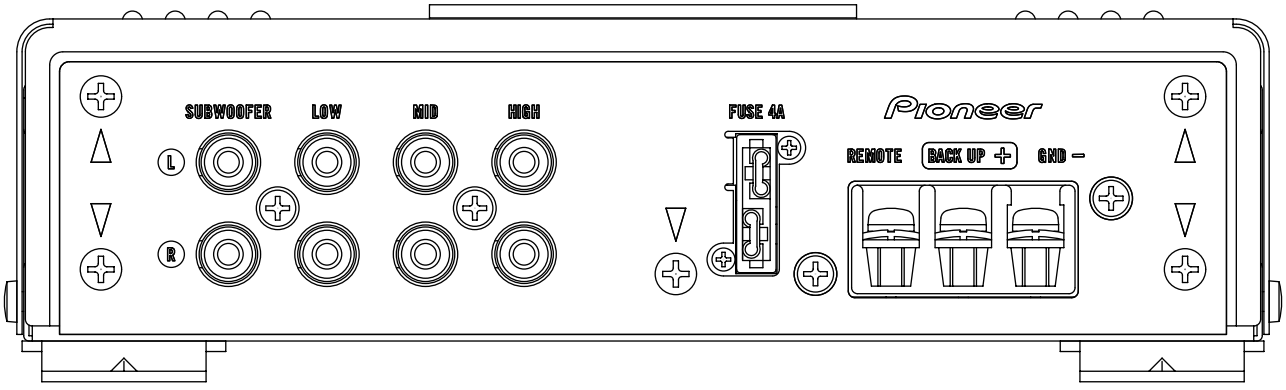


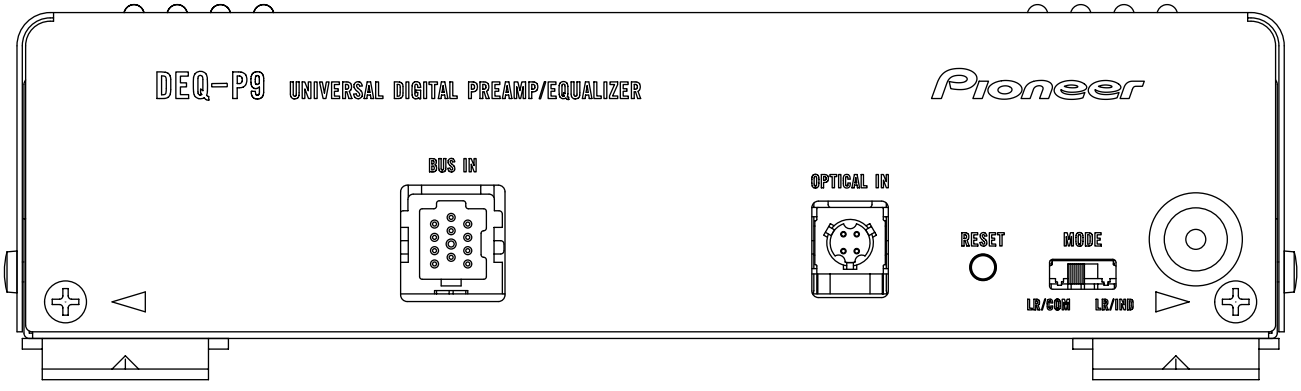
The communications are performed with the DSP IC at 4 ms intervals (see upper left figure). The determination on whether the DSP IC is operating normally or not, is made by monitoring the DSPACK(Pin66) and DSPERR(Pin65). Under normal conditions, the DSPACK(Pin66) will fall to LOW after counting 9 clock cycles of the DSPCK(Pin26) (see upper right figure). By determining which of the DSPCS1-3(Pin61/62/63) is LOW during that time, we can find out which IC is engaged in communications. When the DSPACK(Pin66) does not become LOW, then the IC of that DSPACK (Pin66) may be faulty or abnormal.
An error will occur with the DSPERR(Pin65), when it is LOW. The DSPERR(Pin65) may become LOW during initialization, but an error occurs at the DSP when it is LOW during a periodical communication. An error is relayed in the order of CHIP1→CHIP3→CHIP2 of the DSP, so please determine at which IC the error is occurring.

Others
When LRCK§BCK and DATA are being output from DSP IC in a normal manner, please verify the output of the DF IC. When a digital waveform is being output from the DF IC, then please check the DAC IC. When an analog waveform is being output from the DAC IC, then please check the EVOL IC.

8. OPERATIONS AND SPECIFICATIONS

8.1 OPERATIONS

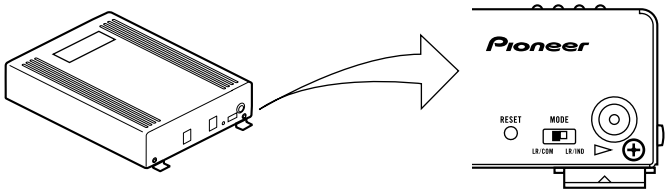




MODE Switch Setting

This product equipped two setting modes. The one is LR/IND mode and the other is LR/COM mode. LR/IND mode can be adjusted the equalizer and network adjustment independently between Left and Right channel. LR/COM mode can be adjusted these adjustment simultaneously between Left and Right channel. Since usable functions are different between LR/IND and LR/COM, be sure to set the mode correctly.

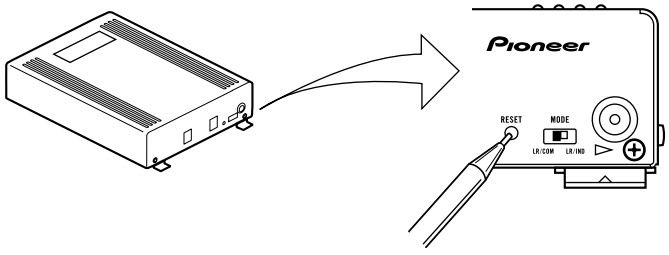
- **Set MODE switch of this product to appropriate position with a pen tip or other pointed instrument.**



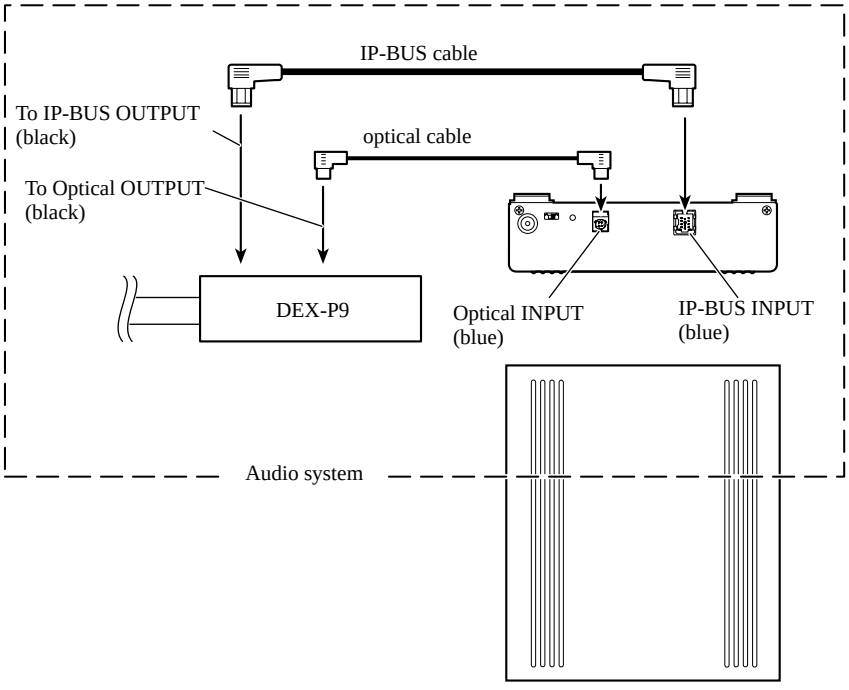
Resetting the Microprocessor

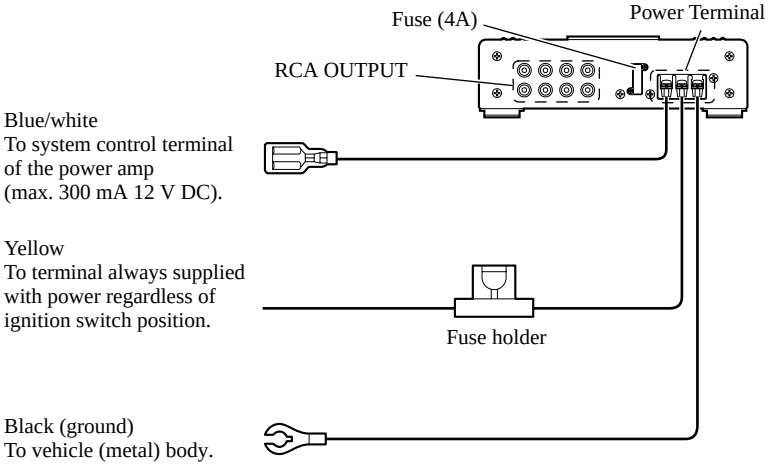
The microprocessor must be reset under the following conditions:
When using this product for the first time after installation.
When the machine fails to operate properly.
When strange (incorrect) messages appear on the display.
When setting the position of the MODE switch of this product.

- **To reset the microprocessor, press the RESET button on this unit with a pen tip or other pointed instrument.**

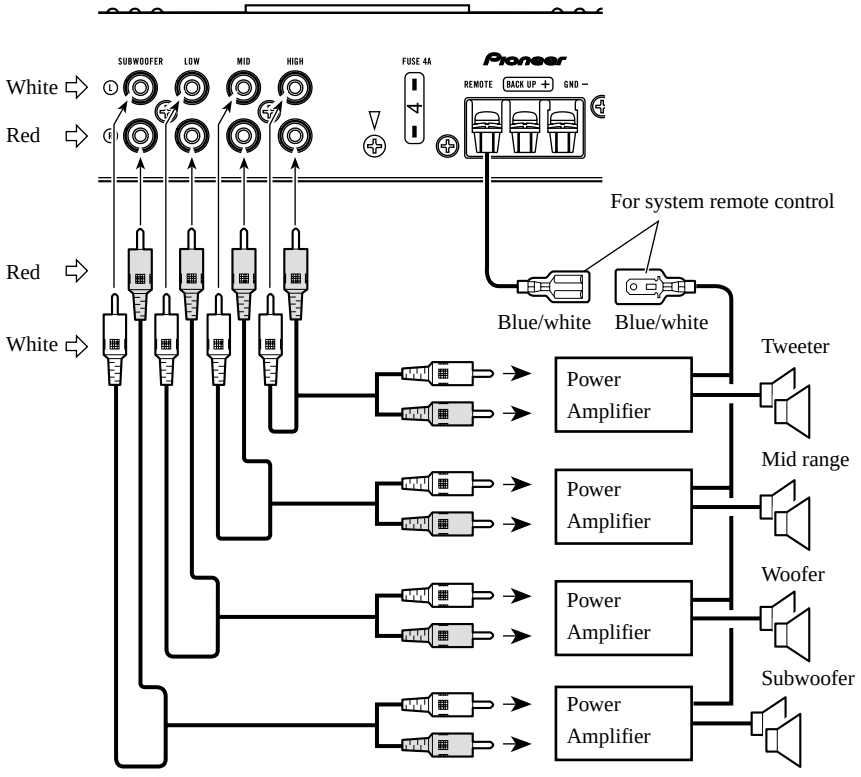


Connection Diagram





Connecting the RCA Input Amplifier



8.2 SPECIFICATIONS

● DEQ-P9/UC

GENERAL

Power Source ..... DC 14.4 V (10.8 — 15.1 V allowable)
Grounding system ..... Negative type
Fuse ..... 4 A
Backup current ..... 2 mA or less
Dimensions ..... 191 (W) × 49 (H) × 220 (D) mm
Weight ..... 1.8 kg

DSP/PREAMP

Tone controls (parametric)
- Bass frequency ..... 63 Hz, 100 Hz, 160 Hz, 250 Hz
- Treble frequency .... 4 kHz, 6.3 kHz, 10 kHz, 16 kHz
- Gain ..... ±12 dB (1 dB)

31-band graphic equalizer (L/R independent)
- Frequency ..... 20 Hz — 20 kHz, 1/3 oct.
- Gain ..... ±12 dB (0.5 dB)

Crossover network (L/R independent)
- SUBWOOFER
  - ..... HPF frequency: 20 Hz — 100 Hz, 1/3 oct.
  - ..... LPF frequency: 25 Hz — 250 Hz, 1/3 oct.
  - ..... Gain: +10 dB — –24 dB (0.5 dB)
- LOW ..... HPF frequency: 25 Hz — 250 Hz, 1/3 oct.
  - ..... LPF frequency: 250 Hz — 10 kHz, 1/3 oct.
  - ..... Gain: 0 dB — –24 dB (0.5 dB)
- MID ..... HPF frequency: 200 Hz — 10 kHz, 1/3 oct.
  - ..... LPF frequency: 2 kHz — 20 kHz, 1/3 oct.
  - ..... Gain: 0 dB — –24 dB (0.5 dB)
- HIGH
  - ..... HPF frequency: 1.6 kHz — 20 kHz, 1/3 oct.
  - ..... LPF frequency: 8 kHz — 20 kHz, 1/3 oct.
  - ..... Gain: 0 dB — –24 dB (0.5 dB)
- Slope ..... PASS, –6, –12, –18, –24, –30, –36 dB/oct.
  - .....(PASS: no pass HPF-High channel)
- Phase ..... NORMAL/REVERSE
- Time alignment ..... 0 — 134 in. (0.67 in.)

Position adjustment
- ..... DISTANCE: 0 — 134 in. (0.67 in.)
- ..... Level: 0 — –30 dB

Sampling frequency ..... 44.1 kHz
Digital input ..... Optical input
Analog Output ..... RCA (4 way)

RCA OUTPUT

Frequency response ..... 10 Hz — 20 kHz (+0, –1 dB)
Max. output level/impedance ..... 4 V/1 kΩ
Distortion ..... 0.005% (1 kHz, 20 kHz LPF)
Signal-to-noise ratio ..... 109 dB (IHF-A network)
Separation ..... 90 dB (1 kHz, 20 kHz LPF)

Note:
- Specifications and the design are subject to possible modification without notice due to improvements.

● DEQ-P9/EW

GENERAL

Power Source ..... DC 14.4 V (10.8 — 15.1 V allowable)
Grounding system ..... Negative type
Fuse ..... 4 A
Backup current ..... 2 mA or less
Dimensions ..... 191 (W) × 49 (H) × 220 (D) mm
Weight ..... 1.8 kg

DSP/PREAMP

Tone controls (parametric)
- Bass frequency ..... 63 Hz, 100 Hz, 160 Hz, 250 Hz
- Treble frequency .... 4 kHz, 6.3 kHz, 10 kHz, 16 kHz
- Gain ..... ±12 dB (1 dB)

31-band graphic equalizer (L/R independent)
- Frequency ..... 20 Hz — 20 kHz, 1/3 oct.
- Gain ..... ±12 dB (0.5 dB)

Crossover network (L/R independent)
- SUBWOOFER
  - ..... HPF frequency: 20 Hz — 100 Hz, 1/3 oct.
  - ..... LPF frequency: 25 Hz — 250 Hz, 1/3 oct.
  - ..... Gain: +10 dB — –24 dB (0.5 dB)
- LOW ..... HPF frequency: 25 Hz — 250 Hz, 1/3 oct.
  - ..... LPF frequency: 250 Hz — 10 kHz, 1/3 oct.
  - ..... Gain: 0 dB — –24 dB (0.5 dB)
- MID ..... HPF frequency: 200 Hz — 10 kHz, 1/3 oct.
  - ..... LPF frequency: 2 kHz — 20 kHz, 1/3 oct.
  - ..... Gain: 0 dB — –24 dB (0.5 dB)
- HIGH
  - ..... HPF frequency: 1.6 kHz — 20 kHz, 1/3 oct.
  - ..... LPF frequency: 8 kHz — 20 kHz, 1/3 oct.
  - ..... Gain: 0 dB — –24 dB (0.5 dB)
- Slope ..... PASS, –6, –12, –18, –24, –30, –36 dB/oct.
  - .....(PASS: no pass HPF-High channel)
- Phase ..... NORMAL/REVERSE
- Time alignment ..... 0 — 340 cm (1.7 cm)

Position adjustment
- ..... DISTANCE: 0 — 340 cm (1.7 cm)
- ..... Level: 0 — –30 dB

Sampling frequency ..... 44.1 kHz
Digital input ..... Optical input
Analog Output ..... RCA (4 way)

RCA OUTPUT

Frequency response ..... 10 Hz — 20 kHz (+0, –1 dB)
Max. output level/impedance ..... 4 V/1 kΩ
Distortion ..... 0.005% (1 kHz, 20 kHz LPF)
Signal-to-noise ratio ..... 109 dB (IHF-A network)
Separation ..... 90 dB (1 kHz, 20 kHz LPF)

Note:

- Specifications and the design are subject to possible modification without notice due to improvements.